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BULLETIN

No. 32

THE RAILWAY AND LOCOMOTIVE HISTORICAL SOCIETY

BULLETIN No. 32

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During the summer, through the kindness of the heirs of the late Daniel L. Harris, this Society and the Baker Library were the recipients of many interesting documents and papers relating to the construction and operation of our early railroads. Among the papers received was a journal kept by the late D. L. Harris, in connection with his office as a Government Director of the Union Pacific R. R. and his trip over the road in July, 1869, just two months after the last spike was driven at Promontory, Utah. Here we have the temperate and sane observations of a thorough going railroad man, jotted down daily, with the accompanying notes on the recklessness and extravagance used in the construction of the road. Here we have allusion to the much vaunted feat of railroad construction of building 7½ miles in one day and here we see how foolishly and how expensively it was done. His visits to places of interest on the Pacific Coast and his comments upon them cannot help but interest the majority of our members. Although the trip of inspection over the Union Pacific and his visit to California cover but two months, we would do well to remember that Mr. Harris was one of the two outstanding railroad men produced in the State of Massachusetts and that he saw affairs and places with the eyes of an expert. It seems fitting, since we are touching on the Connecticut River R. R. locomotives in our Boston & Maine series, that we should not only reproduce this diary but an account of the life of Mr. Harris as well.

While the majority of our members are interested in the history and the development of the locomotive, we must not lose sight of the fact that the locomotive, while it is important, is not the only item of equipment that has an interesting history on our railroads. The truth of the matter is that the development of the locomotive is probably the

best known of any. Through the kindness of Prof. E. C. Schmidt, Chairman of our Mid-West Committee and through the careful research work of Mr. E. G. Young, we are able to produce in this Bulletin an interesting account of "The Development of the American Railway Passenger Car." Here we have the story of our passenger equipment neatly and concisely set forth and we believe this paper will be of vital interest to our members.

NEW YORK MEETING

Our members living in the vicinity of New York City are invited to attend an informal meeting of our members, to be held on Saturday afternoon at 2:30 P. M. on November 18th next, in the office of our Vice President, Mr. Edward Hungerford, at 230 Park Avenue, New York. Mr. Hungerford, fresh from his duties in connection with the World's Fair at Chicago will have something to say to our members on this subject. The meeting will be strictly informal, there will be a chance to chat and talk over our various hobbies. The invitation to attend this meeting is extended to not only our members living in the environs of New York City, but to any others who may desire to come and spend a pleasant afternoon.

A Good Engine

By E. M. Carter

For a number of years the 466 did the yard work at Ware and handled the local freight from Ware to Northampton. It is my belief that she was built in 1893 by Manchester and came to Ware when nearly new. This little standard 18x24 with five foot wheels was placed on this job so that not only would she do her regular work, but being located at an outlying point away from division terminals, she could be called on in case of engine failures either of the passenger or through freight service. This 466 was one of the finest examples of a well-balanced engine that the writer has ever met. It seemed that anything asked of her was possible of performance.

Snow plow, excursion or emergency work on the mail or the night freights were all the same. She would steam for any kind of firing as long as the grates were covered. A mile a minute with a light train was no particular effort and there was no serious job peddling sand on the hills when she had a heavy freight drag.

For many years Mr. Jesse Connery, who has now passed on, ran this engine on the Ware and Northampton job. He took great interest in doing his part in keeping the 466 in the best of condition. Mr. Connery was a man of rather peppery temperament and could explain things to a crew in a very understanding manner but he did his running on the road, and in switching was more than ordinarily careful not to hurt a brakeman.

Connery has gone to his rest; the 466 to the scrap heap: the passing of a good engine and a good man.

D. L. Harris.

Daniel L. Harris

By Chas. E. Fisher

Daniel L. Harris, Ex-Mayor of Springfield, Massachusetts, and for nearly twenty-five years President of the Connecticut River Railroad Company, died at his residence in Springfield, at half-past three, on the morning of July 11, 1879, after an illness of more than two years.

His funeral was held at the South Church, of which he was a member, at four o'clock, Sunday afternoon, July 13th. The attendance was so large that many were unable to gain admittance to the church, and the *Springfield Republican* in its notice of it said that "it showed more powerfully than words, by the size and character of the audience, how strong a hold he had upon the esteem of the public, his friends and his railroad associates." The sad faces of the large audience told of the deep sorrow which everyone felt and of the great personal loss that each had sustained. Thus ended the career of one of the two greatest railroad men of Massachusetts, both of whom lived in Springfield.

The Harris family dates back to the earliest days of New England history. His progenitor, Thomas Harris, came from Bristol, England, with Roger Williams, in the ship Lion, commanded by Captain Pierce, which sailed from Bristol on December 1, 1630. A brother, William Harris, came with him and together they settled at Salem. When Massachusetts gave Roger Williams notice to take his departure from the colony, Thomas and William went with Roger Williams and his adherents to Rhode Island, in 1635, where they founded Providence. It was from such sturdy ancestors as these that Daniel L. Harris, oldest son of Allen Harris, was born, in Providence, February 6, 1818. His birth-place was in a brick house in High Street, afterwards purchased by Governor Knight.

Allen Harris, father of Daniel L. married Hart Lester, daughter of Col. Timothy Lester of Plainfield, Connecticut, on May 7, 1816. In 1817 he moved to Providence, R. I. and went into partnership with a Mr. Richmond, in the dry goods business. Not succeeding in that, in 1820 he moved to Sterling, Connecticut, and for several years he was agent of the old stone mill. Later he moved to Central Village where he built a cotton mill to manufacture bed ticking. He kept a village variety store for the factory hands. On Aug. 24, 1826, his wife died and in 1827 he married Almira Vaughn, daughter of Russell Vaughn of Plainfield. He sold out his interest in the cotton mill and in 1843 moved to Worcester, Massachusetts, commencing business as a commission merchant. Here he was successful and accumulated considerable property and here he died in 1864. His son William H. was associated with him for many years.

Allen's children were, by his first wife—Daniel Lester, born in Providence, Feb. 6, 1818; William Henry, born in Sterling, Ct., Mar. 7, 1820; Joel Benedict, (named for the Pastor, Rev. Joel Benedict) born at Plainfield, Ct., Nov. 5, 1822. By his second wife—Mary Gladden, born in Plainfield, Apr. 17, 1829 and Emma Caldwell, born in Plainfield, Aug. 15, 1836. These were the brothers and sisters of Daniel L. Harris.

As a boy he was active and faithful. The hours usually given to boyish pleasures were spent in study and work. His step-mother, in referring to his boyhood, said: "Daniel was always a good boy, very respectful and obedient, and always made himself useful. He had a very manly way and took charge of his younger brothers like a man. You would be surprised to see what that boy would do to help. He took it upon himself to bring in the kindlings and would get up before all the rest of the family to make the fire in the kitchen, for the old colored cook, so that he could have his breakfast in time to walk between three and four miles to school,—the Plainfield Academy." In spite of his long walk to and from school, he was always ready to help in the factory, about the store or in the house. He stood well in his classes but he was no prodigy. He accomplished what he did by persistent labor.

In the fall of 1835 he entered Wesleyan University at Middletown, Connecticut and so well was he prepared, he entered the sophomore class. It was his intention to follow, after graduation, the profession of civil engineering. He kept that in view throughout his college career and was very good in all the studies bearing upon it. He was exceedingly mortified one day when one of his compositions was returned with twenty corrections in spelling marked upon it. He resolved it would never happen again and, under the advice of the President of the college, he made it a point to read every day, some of the standards of English literature. He was very careful in all of his pecuniary transactions and kept an accurate record of all sums received and how they were spent. This habit lasted throughout his entire life as well as those of neatness and order.

Although he graduated on August 23, 1837 he remained in the college, studying engineering until the following March. On April 9th, 1838, his railroad career started when he commenced work on the Norwich & Worcester R. R., on the line between Killingly and the state boundary, under the supervision of Mr. Laurie. He acted as rod-man during the survey and as Mr. Laurie held out no inducement for promotion, he determined to go west, leaving the Norwich & Worcester R. R. on Sept. 18, 1838.

We find Mr. Harris next working on the survey of the New York & Erie R. R., under the supervision of Edward J. Farnum, Engineer in Steuben County. Here, working out of Corning, he worked on the surveys in the valley of the Canisteo River towards Hornellsville. It was during this work he received the injunction from his father—"To keep the feet dry, the head cool and the stomach full." His work in Steuben County continued until May, 1839, when, aid from the State of New York not forthcoming, he, together with all of the forces were discharged.

Returning home he was again for a short time connected with the Norwich & Worcester R. R. and then in 1840, he accepted the position of Assistant Engineer of the Albany & West Stockbridge R. R. In the summer of 1840, he received an offer from James Laurie, the former engineer of the Norwich & Worcester R. R., to join him in making the survey of the Troy & Schenectady R. R. This offer he accepted and took an active part in the survey of this road. Upon the completion of the

road he declined the office of Superintendent of the road because the salary was too small. His uncle offered to send him to Europe and this offer he also declined.

It was while he was connected with the Norwich & Worcester R. R., he made the acquaintance of Mr. and Mrs. Azariah Boody. Mr. Boody had a contract to build a part of that road and after completing the work went to Pittsfield, Massachusetts to live. While engaged on the Troy & Schenectady survey, young Harris frequently visited his counsins, the Bement and Pomeroy families. Mr. Boody frequently invited him to visit him and spending the Fourth of July, 1842 with Mr. and Mrs. Boody, he met Miss Harriet O. Corson, of Canastota, N. Y., who was then living with her sister and attending Maplewood Institute. In due time an engagement followed and he was married at the age of twenty-five.

His work at Troy being completed he set out, in the company of Mr. Boody, for Pittsfield, waiting at the Berkshire House for Miss Corson to get ready to be married. She having lived in New York state previously, very naturally had objections to having her marriage intentions read from the pulpit on three successive Sundays, as was the law and custom at that time in Massachusetts, so they left the state to have the nuptial knot tied. Mr. and Mrs. Boody accompanied them to Albany and here they met Miss Corson's brother and some friends. On the evening of May 25, 1843, at the Mansion House, they were joined in marriage. The next day they started on their wedding journey, visiting a sister-in-law of Mrs. Harris at the old home at Canastota, then to Rochester to visit her mother and other friends and then to Niagara Falls. They returned to Pittsfield by the way of Troy where they spent a few days. At Troy, Mr. Harback, an engineer with whom Mr. Harris had been connected on the Troy & Schenectady R. R., announced that they both had been appointed division engineers of the proposed road between Hartford and Springfield. Leaving Mrs. Harris with her sister at Pittsfield he set out for Hartford. Mr. Van Rensselaer, the Chief Engineer, was anxious to have the work done as quickly as possible. The survey was begun on June 12th and on July 19th, the line had been run through to Springfield and the reports handed to Mr. Van Rensselaer.

On the 20th of September, Mr. and Mrs. Harris came to Springfield to live. Six weeks later his part of the work was completed and then he was employed by Charles Stearns to survey the boundary lines separating those lands from the individuals and the United States Government at the Armory, which were in dispute. Thanksgiving was spent at the home of his father, the first time his parents had met his bride.

It was in 1845 that Mr. Boody urged Mr. Harris to give up civil engineering and invited him to join with Amasa Stone and himself in building railroads and bridges. He gladly accepted and the new firm was Boody, Stone & Harris. Mr. Boody had contracted to build the extension of the Hartford & New Haven R. R. to Springfield and the firm purchased the right to build the Howe truss bridge for all New England and Canada. Mr. Boody was a very successful and talented railroad builder. Mr. Stone was thoroughly acquainted with the bridge work.

Mr. Harris was experienced in civil engineering and making estimates. These three men made a strong combination of talent, which proved fortunate for all of them.

From 1845 to nearly the close of his life, Mr. Harris was actively engaged in business enterprises connected with railroads and bridge building. The various firms with which he was connected were as follows: Boody & Harris; Boody, Stone & Harris; Stone & Harris; Boody, Ross & Harris; Stone, Harris & Birnie; Harris & Briggs; Harris, Briggs & Co.; Harris & Hawkins; D. L. Harris & Co.; Springfield Tool Co. and Harris & Wright. In some of his business connections the partnership covered only a special operation.

The firms with which he was a member built the Hartford & Springfield and the New Haven & New London Railroads; the bridges on the New York & New Haven, the Hartford, Providence & Fishkill, the Connecticut River, the Vermont & Massachusetts, the New Haven & Northampton, the Portland, Saco & Portsmouth, the Boston & Albany, the Troy & Greenfield, the Cheshire, the Rome & Watertown, the Providence & Worcester, the Lebanon Spring & Harlem and a few on the New York Central Railroad. They also built a bridge over the James River at Richmond; over the Penobscot at Bangor; over the Richelieu, at Chambly, Canada; and over the Harlem near New York City. He also built the first iron bridge in this country, at Seekonk, on the Boston & Providence R. R. Also the great truss roofs on the passenger stations at Buffalo, Rochester, Troy, Springfield and Boston. He was one of the original movers of the Toledo, Wabash & Western R. R. Mr. Boody and Mr. Stone withdrew and went into larger fields to operate. Both accumulated millions to Mr. Harris's thousands, but the latter was content to remain in Springfield. With his increasing family on his hands he did not think it best to sacrifice their comfort by trying to make a fortune elsewhere. It is of interest to note that Mr. Harris's firms built no less than six railroad bridges over the Connecticut River; at Hartford, Warehouse Point, Springfield, Willimansett, Northfield and South Vernon; and three toll bridges at Brattleboro, Montague and Sunderland.

Bridge building gave Mr. Harris a good start in business but it was his long connection with the Connecticut River R. R., as its President, that gave him his greatest reputation. Few men knew both the construction and the management as did Mr. Harris. It was at the suggestion of Mr. Chester W. Chapin, who was then President of the road that he be elected a Director at the Annual Meeting in 1855. Mr. Chapin desired to visit Europe and tendered his resignation as President. At a meeting of the Directors held on March 6th, Mr. Harris was elected to fill the vacancy. From that day he entered heartily into the active management of the road. His desire was to make the service efficient, maintain the value of the property committed to him and to return to the stockholders a greater profit.

The Connecticut River R. R. had its origin with the business men and capitalists of Northampton. For a considerable time it was under the management of residents of that town. Erastus Hopkins was its first President and Samuel F. Lyman, its first Treasurer. The general

offices and repair shops were at Northampton. Mr. Harris became President of the road some ten years after it had been opened. The dividends were small and the stock was selling around $40, the par value of which was $100. The Ashuelot R. R. extended from South Vernon to Keene had been leased for ten years at a sum much above its value. The great expectations of profit from the Northern business were not realized. The road was in a very critical condition at the time Mr. Harris became its president. With all his energy, he went to work to improve its condition. His positive manner, in time, created a feeling in Northampton against his management.

Mr. Harris saw clearly that a small road, such as was the Connecticut River R. R. could be more easily and economically managed from one end of the road. The people of Northampton opposed the moving of the shops and general offices to Springfield. Under the leadership of Samuel F. Lyman, of Northampton, Treasurer of the road and Francis B. Crowningshield, of Boston, a Director of the road, an attempt was made to increase the number of directors who would oppose Mr. Harris in this matter, after the stockholders meeting of January 20th, 1858. Mr. Harris held, that as the board had been elected for the year, it was not competent for the stockholders, under the by-laws, at that time to add to the number of directors. In this decision he was sustained by Mr. R. A. Chapman, afterwards Chief Justice. The Supreme Court refused to entertain the position for a mandamus and after Mr. Harris again refused to entertain the motion at a stockholders meeting, the meeting adjourned. This was the only active opposition Mr. Harris ever had in his management of the affairs of the road and the position taken by him has since become the common law of the state. On April 14th, 1858, the Directors elected Mr. Seth Hunt, of Northampton, Treasurer, in place of Mr. Lyman. Mr. Hunt had been Treasurer's clerk since the organization of the company. Mr. Crowningshield was not re-elected a Director at the next Annual Meeting but in time came to regard Mr. Harris's management as wise and best and friendly relations were maintained between them up to the time of his death. The repair shops and general offices were removed to Springfield and experience proved the road could be operated more economically from one end than from the center. The removal, however, was not caused by his desire to add to the prosperity of Springfield.

It was Mr. Harris's ambition to make the Connecticut River R. R., for a short road, the very best in the country. Under his direction he not only saw the road prosper but the stock rose in value from $40 per share to $140, the highest price of any railroad in the state. The action of Governor Smith of the Vermont Central, instead conducting the negotiations for the control of a road jointly with the Connecticut River and his road, was rather a staggering blow to Mr. Harris, since he had placed great confidence in Gov. Smith. Mr. Harris simply set about making his own road in that much better position to compete with the new arrangement. Space will not permit us to relate here all his achievements of railroad management but there was no road in Massachusetts that showed so little arbitrary power and did so much to please its patrons.

For twelve years he gave conspicuous service to the Eastern Railroad Association. Formerly the railroads were often subjected to the expense of litigation for the use of patents, by persons claiming ownership. In many cases the railroads submitted to unjust demands rather than be annoyed by a suit in court. As early as 1861, Mr. S. M. Whipple, of North Adams, Massachusetts, entered upon an investigation of patents and patent claims relating to railroad machinery and for four years was employed by the various roads entering Chicago. In 1865 the Boston & Lowell R. R. employed him to investigate some claims for them. The year following he was engaged by the Boston & Maine, Eastern, the Connecticut River as well as the Chicago roads. In January, 1867, Mr. Whipple prevailed upon Mr. T. B. Blackstone, President of the Chicago & St. Louis R. R., to call a meeting in his office and start some form of an association. The meeting was held in Mr. Blackstone's office on January 10th, 1867 and a constitution was presented by Mr. Whipple. On January 17th of the same year, the constitution, with some slight alterations, was adopted and thus was born the Western Railroad Association. A copy of the constitution was brought east by Mr. Whipple and on February 6th, 1867, at a meeting in the Boston & Lowell R. R. office, the constitution with some slight changes was adopted and the Eastern Railroad Association was formed. Mr. Hinckley, President of the Philadelphia, Wilmington & Baltimore R. R. was elected President, Mr. Harris was elected Secretary and Mr. Whipple was the Agent. The work fell mainly upon Mr. Whipple and Mr. Harris, and here the engineering skill of the latter was of value in the investigation of claims for infringement made upon the railroads of the Association. While the first plan was simply to test the validity of the claims, under Mr. Harris the work broadened and considered the value of all patents relative to railroad machinery. Perhaps his crowning service in the association was the defeat of the Tanner brake suit for infringement. This was decided against the patent by the United States Supreme Court. Mr. Harris organized the opposition and carried the fight from a defeat in the lower court. When the Tanner people won their case in the court at Chicago, the railroads were ready to yield upon almost any terms. Mr. Harris visited Commodore Vanderbilt and found that he too, was ready to compromise, for $30,000, on the grounds that the other roads were cutting to get good terms. Mr. Harris challenged the statement in his positive fashion, hard words were bandied for the moment, but within ten minutes the New York railroad magnate had agreed to stand out and thirty million were saved to the railroads of the United States.

His railroad management and bridge building interests did not occupy all of his time, though to them he gave his greatest effort. When he died he was a Director in the Springfield Fire & Marine Insurance Company, the Chapin Bank, the Holyoke Water Power Company, the Crocker Paper Mill and he was President of the City Library Association. While he devoted his energies to business, he did not lose sight of the importance of any question that affected the people. He was too outspoken and pronounced in his views to make a politician. But notwithstanding all this, he was elected to the City Council in 1854, 1876 and

1877; to the Board of Aldermen in 1863; Mayor in 1860 and a member of the Legislature in 1857, 1863, 1867, 1870 and 1873. The City of Springfield never sent to the Legislature a more indefatigable worker. He held places on important financial and railroad committees. He never faltered in his advocacy of questions affecting a wise and economical expenditure of public funds. He considered the Hoosac Tunnel project uncalled for and an extravant and wasteful use of public money. The Franklin County idea that the finger of Providence had marked out a great railway line up to the Hoosac Mountain via the Deerfield Valley, and beyond it along the river valley to the Hudson River, never impressed Mr. Harris. There were others opposed to the building of the Hoosac Tunnel. Among them was Charles Francis Adams. In one of his speeches he made the statement to the effect that the moneys expended by the State of Massachusetts in constructing this "bore" could have purchased the entire New York Central R. R. and its connections, from New York to Chicago!

During the last years in the City Council he worked zealously to reduce public expenditures and bring them within the limits of former times. As Mayor he did much to simplify the work in hand and make every department efficient and economical. The streets of the city had never been clearly defined and he employed Heman Smith to make a complete survey of the city and set granite boundary posts.

Mr. Harris's interest in the City Library grew out of his fondness for young men. He frequently remarked: "I do not want a City Library for myself or family. I have plenty of books at home; but I want to make a good place for young men, where they can spend their evenings improving their minds—just such a place as I longed for as a boy. It would have been a great help to me." The erection of the Library building on State Street left the Association heavily in debt. Mr. Harris contributed largely towards paying off this debt and was the means of raising the money to pay off the balance.

Early in 1859 Mr. Harris received an offer through the Chief Engineer, George W. Whistler, from the Russian Government to make an examination and report upon the condition of the bridges of the St. Petersburg and Moscow Railroad. Mr. Harris accepted the offer and his journal, for he kept one, is of great interest and may possibly be reproduced in some future bulletin.

In March, 1869, President Grant appointed Mr. Harris a Government Director of the Union Pacific R. R. His connection with that road and the events of his journey to the Pacific Coast and back in that year will be found on subsequent pages.

To those who met Mr. Harris for a special purpose, he appeared gifted as a talker. His statements were clothed in language which conveyed his precise meaning and were made without hesitation. In reality his conversational powers were not large. He could state a fact clearly and easily express any conclusion drawn from it; but he could not entertain a company as an after dinner speaker. He seldom made a speech before a public audience; but when called out on any question to which he had previously given thought, he could talk well. He was remark-

ably systematic in all his affairs. Papers relating to every business transaction were carefully preserved and placed where he could find them at any time. One could not call him humorous, though he appreciated keen wit. He was deeply religious without being bigoted. Shortly after coming to Springfield he joined the South Church and continued his connection with it to the close of his life.

Intensely active, he overdrew his vitality, his blood deteriorated and anaemia followed. Two years prior to his death his condition became critical until finally, this man who had worn himself out in the service of others, passed away.

Eleven children blessed this marriage:

Edgar Lester, born July 26, 1844. Died December 9, 1846.
Twin daughters born August 9, 1846. Died August 10, 1846.
Corinne, born August 31, 1848.
Harriet Buckingham, born September 15, 1850.
Azariah Boody, born March 8, 1853.
S. Jeannie, born April 26, 1854.
Lillie Johnston, born January 26, 1856.
Ambia Corson, born May 28, 1859.
Henrietta Clark, born June 20, 1861.
Cornelia Hawkins, born July 10, 1866.

(The author wishes to acknowledge his deep debt of gratitude to the Harris Family for the gift of the book—"Memorial Tributes to Daniel L. Harris", edited by Henry M. Burt and printed in Springfield in 1880 for private presentation for the Harris Family. The above facts have been taken from this book, a worthy tribute to so fine a character.)

THE PENNOYER COLORED PRINTS

We are again calling the attention of our members to the set of colored prints which this Society has for sale to its members. The original pictures were from the brush of the talented artist and one of our members, A. Sheldon Pennoyer. They were originally reproduced in "Fortune", a magazine well known for its reproductions. A limited number of sets from these plates was made for this Society and then the plates were destroyed.

The set includes "Snowbound", a Crampton type of locomotive of 1850 on the Camden & Amboy R. R.; the "Pioneer", built by Seth Wilmarth, of Boston, for the Cumberland Valley R. R. in 1851; an American Express train of the Seventies hauled by a Rogers locomotive and through the kindness of the Delaware & Hudson R. R., we are able to include the "Stourbridge Lion", imported by that road from England in 1829. The "Pioneer" is 7x11 in size, the other three prints are $8\frac{1}{4}$x$10\frac{1}{2}$. There are still a few sets remaining. The price is $5.00 per set. Orders should be sent to Chas. E. Fisher, 6 Orkney Road, Brookline, Mass.

Memoranda Concerning the Union Pacific R. R.

From a Note Book of D. L. Harris—President, Connecticut River R. R.—1869.

March 8th, 1869

AT three o'clock this afternoon I received a telegram from the Secretary of the Union Pacific R. R. notifying me of a meeting of the directors at the office in New York tomorrow, and at the same time received a line from Mr. Dillon notifying me of my appointment by President Grant to the position of Government Director of the Company. Took the train for New York at 6:30 P. M., arriving at Fifth Avenue Hotel about 11 P. M.

March 9th, 1869

Was present at the directors meeting called for 12 o'clock. Very little business was done excepting to read the minutes of the Executive Committee which appears to have been trusted with full powers of the board and in turn to have delegated its own powers to Mr. Durant, one of its members. I went from the meeting with a conviction that the affairs of the company had been recklessly managed. Found that my associates on the Government part of the Board are James Brooks of New York, J. L. Williams of La Fayette, Ind., Mr. Price of Davenport, Iowa and Gen. Webster of Chicago. The meeting was conducted without due regard to order and decorum. There is a widespread feeling of dissatisfaction with Mr. Durant and it is in contemplation to elect a board that will not continue him in power.

March 10th, 1869

The Annual Meeting of the Stockholders was convened at 10 o'clock in the Company's office at 20 Nassau Street. The Government Directors were not requested to retire from the room. The whole morning (and for an hour after the assembling of the Stockholders) was spent by the two contending parties in the effort to agree upon a new list of directors to be voted for. Finally a compromise was made and the votes were being cast when the sheriff with a posse appeared on the complaint of J. Fiske, Jr., under the order of Judge Barnard to stop the election. An exciting time followed, arrests were made, and the meeting ended somewhat irregularly.

March 11th, 1869

A special meeting of the old board of directors had been notified for ten o'clock. For some reason the meeting was not called to order at the proper time. When called, little or nothing was done excepting to take away Mr. Durant's unlimited powers and appoint a committee to visit the line of road. Upon my return after a moments absence I was told

that the board had adjourned until tomorrow at 12 o'clock. Everything goes to confirm me in the opinion that the affairs of the company have been and are managed in the most extravagant, slipshod and reckless manner. From all I hear about Fisk's former connection with members of the Company, I fear that he has got a hold upon the company that will enable him to break it down. The Government Directors united this afternoon in a brief report of the state of affairs to the Secretary of the Interior Department.

March 12th, 1869

The meeting set down for 12 o'clock did not come to order at that time. I remained at the office most of the day but saw no improvement in the condition of affairs. In the evening I conferred with President Ames and others and upon learning that there was testimony upon which Judge Barnard can probably be indicted by the Grand Jury, I urged that it should be done or attempted forthwith. Left for home at 8 o'clock P. M.

March 15th, 1869

The House of Representatives at Washington has this day passed an act intending to relieve the company of the liability to answer in state courts.

March 22nd, 1869

Judge Barnard has put the Company in the hands of a receiver. This is a discouraging condition of affairs.

March 23rd, 1869

I propose to go to New York tomorrow and find out the present prospects.

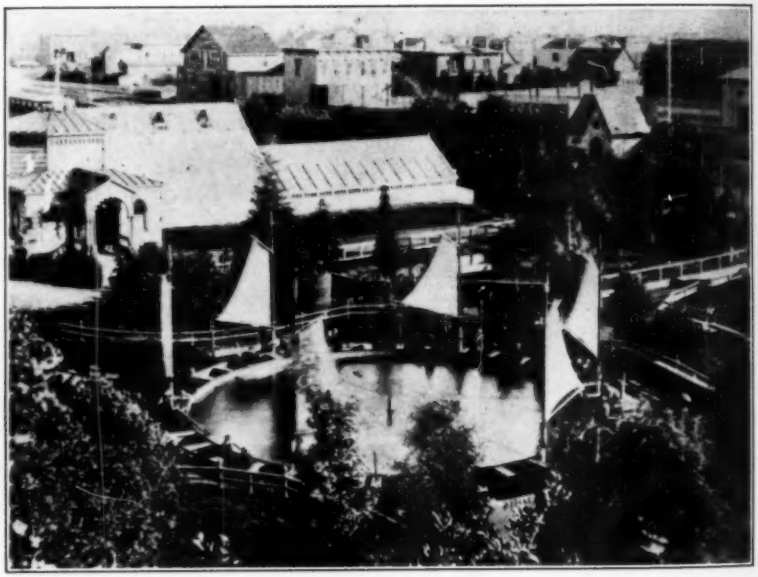
March 27th, 1869

While in New York I called at the office of the Company but could get no definite information as to position of affairs. The impressions I gathered were those of chaos and inability or indisposition to bring order out of it. I fear the Company will not long survive the shock which the rascally legal proceedings of Fiske are causing. The securities of the Company are depressed in the money market, the indebtedness of the Company at the bank is said to be large, and it was hinted to me that the principal officers of the Company and of the contracting company were keeping out of sight. After reaching home today I received a letter advising me of the probability that Congress would today complete the passage of an act under which the Company will be able to complete its organization in spite of Judge Barnard's injunction.

April 8th, 1869

A meeting of the old board of directors was called to meet at New York on the 8th. I went down on the afternoon train of the 7th and found on arrival that it had been determined to disregard the call and issue a new one for a meeting at Boston on the 9th.

Palace Hotel—San Francisco, Calif.



Woodward's Gardens—San Francisco

April 9th, 1869

I returned to Springfield on the afternoon of the 8th and proceeded to Boston on the evening train. This morning the directors were together. The leading business was to consider and provide for the indebtedness of the Company which was understood to be about $5,000,000.00 on time loans, $1,500,000.00 on call loans and $700,000.00 on drafts. It was proposed and voted to sell the balance of 1st Bonds at 85 and Land Grant Bonds at 55 giving stockholders the first offer of amounts corresponding to the stock of each. When we proceeded to instruct the proper officer of the Corporation to issue the bonds, someone reminded the board that there was an agreement with the Government that the Patents for the lands should not be issued until the Road had been completed according to the law. I suggested that if bonds were to be issued with these lands for a basis, the face of the Bond must recite the above agreement in substance. The proposition caused much discussion. Finally Mr. Webster drafted the proper language to be inserted and was supported by Mr. Williams and myself in pressing the amendment, which was finally carried. Great firmness was required on the part of the Government Directors. Gen'l. Webster showed himself a true man. I am much pleased with his ideas of right and wrong.

April 12th, 1869

Congress has passed a law authorizing stockholders meetings to be held in other places than New York.

April 16th, 1869

A stockholders meeting is called in Boston on the 22nd.

April 22nd, 1869

Having been notified of a stockholders meeting and supposing that a directors meeting would follow it, I went to Boston yesterday and was in the meeting today. The principal business done was to remove the general office to Boston. The election of directors was postponed to await the return of Mr. Dillon and others now on the line of the road.

I was shown by the President an exhibit of the operating department of the road, January and February, from which it appeared that the gross receipts were $814,000.00 and the expenses $1,030,000.00. The monthly exhibit of material on hand showed: Wood $540,000.00; Coal $36,000.00; Locomotive Supplies $567,000.00; Car Supplies $534,000.00 and other things in proportion. It struck me there must be something wrong in the conduct of the purchasing agent. The Company cannot survive long under such management. I was glad to see a private letter from Dillon declaring that unless Durant should be turned out of the directors he would have nothing further to do with the road. Durant's extravagant and reckless management would soon ruin any company.

June 23rd, 1869

Have attended no meeting since April 22nd. The stockholders meeting called at the time was adjourned from day to day to await the return of Mr. Dillon and Mr. Duff from the line of the road. Sometime in May while I was in New York, (about May 25th) a telegram was sent desiring me to attend a directors meeting next day in Boston. Of course I did not and could not attend. I am now contemplating a trip over the road next month.

July 10th, 1869

Started at 9 A. M. for a western trip—reached Rochester at 9:30 P. M. where I rest until Tuesday next. My son accompanied me, also Jennie and Ambia have come to Rochester for a visit.

July 13th, 1869

Left Rochester at 9:20 and stopped at Detroit—Russel House.

July 14th, 1869

Took the train for Chicago at 6 P. M. after spending most of the day in finding Mr. J. D. Hayes, Sup't. of the Blue Line and conferring with him on the subject of car brakes.

July 15th, 1869

At 2 A. M. our train ran off the track at a misplaced switch. After a delay of 4 hours and we were again upon the track, the next express train by some oversight ran into the rear of our train and we had a narrow escape from a fearful accident. As it was, only one leg was broken. The overtaking train chanced to be going at a slow speed. The telegraph today tells of a similar accident on the Erie R. R. resulting in a terrible loss of life.

July 17th and 18th, 1869

Spent Thursday afternoon and Friday visiting Chicago friends and left for Omaha at 10 this morning. Had a pleasant ride through the day and night and would have arrived at Omaha early Sunday morning but for a break in the road (Chicago & North-western) along the Missouri River Bluffs. This detained us till near noon.

July 19th, 1869

Found Mr. Duff at our hotel and accompanied him to see the machine shops, which are upon an extensive scale. A great deal of extravagance had prevailed in getting up and stocking these shops. There is lumber by the millions of feet. There are thousands of car axles, thousands of lanterns, tons of waste, untold quantities of everything upon which a commission could be obtained from the sellers. I was glad to be told that this leak had been stopped. The shops are kept remarkably neat.

Called on Mr. Snyder, the Superintendent at noon. Learned from him that my associate director, Mr. Price, is expected here in a day or two to go West. I think of remaining until he comes. Gen'l. Dodge afterwards told me Mr. Price would be here and join him Thursday morning.

After dinner Mr. Sickles, Engineer for the Bridges took me to see the works. I was favorably impressed with the plan for the foundations —pneumatic piles—but from all I can see and learn, I think the bridge will not be completed. The U. P. has the whole burden and they are in no condition to bear it.

July 20th, 1869

Spent the day in further looking about the work shops, inquiring into the Company's affairs and getting ready for the trip West. Had a delightful ride with Mr. Mulloy.

July 21st, 1869

Left Omaha at 8:30 having passes to end of U. P. Pullman car $8.00 apiece, extra. Well worth the money but might be afforded cheaper. Meals $1.25 at all eating places. Road in capital order and well built except wood culverts and cottonwood ties which are decaying with marvellous rapidity. Dinner at *Lone Tree* where 8 cabooses, 49 platform and 5 box cars standing idle—a sorry sight. Also 8 new caboose cars. I have seen idle cars as follows: 18 at Papillon, 1 at Elkhorn, 6 at Valley, 20 at Fremont, 4 at Great Bend, 2 at Columbus, 17 at Silver Creek and afterwards saw 40 at Grand Island, 20 at Kearney, 9 at Elm Creek, 13 at Plum Creek, at two other stations 7 and 12 and at least 500 at North Platte where I took supper—a fine meal. The cottonwood tie decays all through but remains so firm on top as not to be indented by the rail where it breaks in two or three pieces. This will cause bad accidents next year. At Elkhorn we cross a branch of the Platte on a Howe bridge with good abutments, replacing a temporary structure. At Freemont is the junction of a road intended as a short cut from Missouri Junction on the North-western road. Immense stocks of fence boards and posts at Great Bend. Is a fence needed? At Columbus another large bridge, but uncovered and like the former, it will soon be rotten. At Silver Creek met the down passenger train with 8 cars. At Lone Tree met a train of coal. At Plum Creek was Gen'l. Carr's force just in from an Indian Hunt.

Met in the evening a member of the firm of Course & Co., who was very communicative. He had been to Chicago to consult partners about taking five months paper for a balance of $200,000.00 due his firm. Represented that the men on the road had not been paid for months and are growing desperate. Said the Company was owing $12,000,000.00 on construction, on account of which two millions at Chicago. Gave an interesting account of the hurrying of the work. Said Durant was both foolish and reckless. One day he came along and ordered him to change

plan of work against earnest remonstrance and refusal and when he himself rode away, Durant stayed and ordered the men. One day he discharged 4 engineers because a bridge was not built and forthwith ordered the contractor to finish it at any cost and offered $5,000.00 bonus if it could be done by next morning at daylight. On the 13th of October, 7½ miles of track are said to have been laid. The extra cost of it was not less than $200,000.00 How so? Because for three days previous all the track and bridge force men were ordered to remain idle at the Company's expense until the tie contractors (Sprague, Davis & Co.) should have distributed all the materials. This involved his own force of 250 men and 90 teams and the rail contractors force of 800 or 900 men and 80 teams, some of which they were in the habit of charging $25.00 for. He further represented that the most disastrous consequences had come from the continual quarrel between the Sup't. of Running Dep't. and the Sup't. of Construction. Saw many settlements of the Prairie dogs.

July 22, 1869

At 5:30 A. M. the air is dry and bracing but quite cool. Surface of the country rolling, the soil light and barren. A rocky bluff appears on the left out of which some worthless stones have been quarried and put into the road. Pine Bluff Station, 475 miles. Met construction train of 8 cars—some of the men sleeping on the ground. A few stunted and scraggy pine trees on the rocks and wood has been drawn in here. Hillsdale—8 idle cars, probably not a passenger taken up or set down since yesterday. Antelope seen.

Cheyenne—100 idle cars, large engine. Had good breakfast.

Hazzard—cacti of beautiful globular form exposed for sale at depot. Here we began to ride the mountain but the work is by no means formidable. Surface of country smooth and soil gravel.

Granite Canyon—half way up—very wild place.

Buford is interesting in its surroundings. Vast piles of boulders appear.

At Sherman is the Summit. Smooth gravel around with here and there vast piles of boulders. Some heavy work in easily excavated rock. Three or four saloons and some wild and hard looking people. From Sherman to Red Butte, considerable rock cutting. The earth becomes strongly alkaline.

Laramie. Arrived at 11:30. Dined and received a telegram from Gen'l. Dodge to wait his coming. An excursion party from Milwaukee is in company and they too are staying over. Evening. I have looked about the shops. Learned from the Master Mechanic, Galbraith, that since January 1st, his force in connection with the machinery department has been reduced from 367 men to 89—that he has 15 locomotives in store with nothing to do and a large amount of machinery for shops that has not been used. Everything is arranged for a large business, but the business is wanting. Freight trains have only four or five cars. One man of whom I inquired declared that he did not believe 20 car loads of freight had gone through. This must have been wild but it is surprising how little is moving.

July 23rd, 1869

Snow capped mountains are in sight at the west and southwest. The soil about Laramie is utterly barren. A few spears of wild grass and an occasional plant of wild sage is all that the vile alkalies will allow to grow under the most favorable circumstances. The town consists of perhaps a hundred board shanties bearing signs of —"restaurant", "billiard saloon", "Omaha House," "lunch", etc., but there seems to be very little patronage for these institutions for the reason that there is still no legitimate business going on and there are hardly more people here than would suffice to keep the refreshment places if they were in full blast. The town or city may be pronounced dead.

Great numbers of cross ties are being delivered here for the road. They are brought down the Laramie River from the southwest. These are probably to be sent East to replace the cottonwood ties, for I notice that the latter were being taken out by the thousand. The "Laramie" falls into the North Platte at Fort Laramie a few miles below us.

At 2 P. M. the train arrived three hours behind time and we joined Gen'l. Dodge and party in a special car with cooking car attached. Gen'l. Dodge is very polite and takes care to show me the leading features of the road and the country. He is much exercised over the removal of Mr. Snyder, the Superintendent, who was superseded this morning without previous notice. The road is in good condition generally; that is the track is tolerably smooth, though the construction in some places is far from complete. On arriving at Bryan, 160 miles from Unity, our car was dropped off the train in order that Gen'l. Dodge may pass between that place and Uintah with an extra car, stopping at the bridges.

July 24th, 1869

Our extra train started at 7:30 A. M. The bridge masonry where it had been put in is very unsubstantial. The stones which were mistaken for good material cannot resist the effect of water and most of the masonry will prove worse than useless. The utter desolation of this country impresses me sadly.

July 25th, 1869

Arrived at Uintah at 10 P. M. and at 6 this morning took stage for Salt Lake City, arriving there at noon. After dinner attended church in the tabernacle and heard a discourse from James Smith. It was a rambling affair but purported to be a history of mormonism. At evening went with several gentlemen and ladies to call on a Mormon family.

July 26th, 1869

Went early this morning to have a bath in the hot sulphur spring just north of the city. Its temperature is about as much as one can bear. This spring was claimed by Robinson, a gentile, said to have been murdered some two or three years ago to get him out of the way. Visited the foundations of the Temple which are of a fair quality of granite brought some 40 miles. The building is to be 190x87. Had a

view of the city from the roof of the Tabernacle which is an oval building 250x150 and has a fine large organ, said to be about 2/3 as large as the one in Boston. In the afternoon we took a ride into the country and also went down to the river Jordan. Was very much surprised at the quality of the crops produced on the irrigated meadows. The valley to the south is said to be equally well cultivated and productive for 400 miles.

After attending to the stage tickets for tomorrow and laying in a supply of gold, we joined Gen'l. Dodge's party in a trip to Camp Douglas—beautifully situated near the foot of the mountain, 2 miles east of the city. Returning from Camp Douglas we visited the Theatre and saw some very indifferent acting. Our object was to see the Mormons and for this purpose it paid to attend their amusements. The House at Salt Lake City is a wretchedly kept hotel.

July 27th, 1869

At 3 A. M. we were called for the stage which left at 4 o'clock. A pleasant ride of 5 hours brought us to Uintah and here we learned the train was five hours late. By the kindness of Gen'l. Dodge we were allowed to take possession of his car at Uintah. Uintah is the landing place for Salt Lake freight. The quantity is so small as to justify the employment of only one man at the station to handle it. The through freight passing this point is almost nothing. Only one passenger and one freight train a day and these are very light. Uintah is a city having a Mayor and five Aldermen. The organization of justice is upon the mining region plan. A man of particularly bad character is warned out of town. If he refuses to go he is brought before the Mayor and fined at discretion. If he has no money to pay, he is locked into a freight car and sent East taking his chance of getting away through the agency of some confederate or railroad employee who may have pity on him. The town will fade away speedily. There are from 200 to 300 people (of whom 4 are women) and I was told that everyone was waiting for the railroad companies to fix the permanent place of junction of the two roads that they might remove there and start a new city. One thing is certain, they cannot live here a day after the road is completed for there is no other business going.

We go away from Uintah at 2 P. M. and had an interesting ride the whole afternoon along the North Shore of the Great Salt Lake. Such utter desolation as pervades most of the route I had never conceived of and am unable to describe. The word *desert* is big with meaning when applied to this portion of the great inland basin.

At Promontory, which is on a promontory extending far south into the lake, we came to the present terminus of the U. P. R. R. Here there is now quite a Railroad "City", but in a few days or weeks the point of junction with the U. P. and the C. P. roads will be changed and then Promontory will subside into its primitive insignificance. Bedtime in one of the finest sleeping cars built at Wilmington, finds us rising out of the Salt Lake Basin.

July 28th, 1869

All this day we have been following the Humbolt River through a desert only a little less repulsive than the one we have left. This river and several others in the vicinity actually lose themselves in the sand.

July 29th, 1869

Daylight this morning found us at Truckee, a romantic and busy looking Railroad City near the summit of the Sierra Nevadas. Near here is Donner Lake, a beautiful sheet of water, almost at the top of the mountain. The ride over the summit, thro' the snow sheds some 28 or 30 miles long and down the valleys on the west side is interesting beyond any thing I had conceived. The road bed and track seem to be almost perfect from Promontory to Sacramento. Arrived in Sacramento at 1:30 and spent the afternoon calling upon the officers of the C. P. Road.

July 30th and 31st, 1869

At 2 P. M. Friday, after spending the morning in visiting Mr. Stoddard and sundry other railroad men (including John Lawler) at the shops, and being shown through a nice Flouring mill, we took the steamer "Yosemite" for San Francisco, arriving there at 11:30 P. M. Slept well and the first thing this morning looked up my cousins Metcalf or rather found out where they lived and am to see them on Sunday afternoon. Also looked up my old friend (Mrs. Mitchell), formerly E. Corcoran. Saw her sister and shall see Elizabeth tomorrow. Had a birds eye view of the city from the head of Pine Street and spent part of the afternoon at the Cliff House on the Ocean. I shall never forget Seal Rock as it lay almost covered with the clumsy monsters.

August 8th, 1869

Friday evening the 30th we started for San Francisco and Saturday was spent looking about the city. Sunday morning August 1st I attended Rev. Dr. Scudder's church and after church went to dine with Judge Metcalf's family. The dinner was superb. The Judge is a regular Southern Aristocrat in feeling and appeared to be well off. Has a daughter of 16 and two or three younger children. Ellen Metcalf (Mrs. Dr. Hays) and her mother were present.

In the evening found Elizabeth Corcoran (Mrs. Mitchell) who has two fine children. She was very glad to see us.

At 4 o'clock on Monday we took steamer for Stockton, enroute for the Yosemite Valley. Two days of stage and a long day on horseback brought us to Hutchins Hotel on Thursday evening. We were thoroughly fatigued with the ride and it was late next morning before we commenced our explorations. A visit to the foot of Yosemite Falls and a trip to Mirror Lake and a short stop at Lingard's Gulch occupied Friday. On Saturday morning, a second trip to Mirror Lake was first in order. Following this came an excursion to Vernal Falls, a climb of the Ladders and a near view of Nevada Fall, all of which was interesting and impressive. After lunch I made a second trip to the Yosemite and had a

beautiful but solitary ride of three miles down the river nearly to Bridal Veil. Today (Sunday) has been spent in a manner becoming the circumstances that surround our little company. Dr. Cox of San Francisco and a Mr. Ball of Buffalo are guests of our hotel and it was pleasant to see nearly our whole company unite in a request to those gentlemen to have divine worship on the rocks fronting the house. Mr. Ball gave an excellent discourse. Wrote a letter home this morning.

August 14th, 1869

On Monday morning the 9th we started out of the Valley by the route we had come in. I would gladly have prolonged our stay but felt that it should not be done. The ride to Hardins on horseback occupied all day. The lunch furnished at Mrs. Gobins hut—a sort of half way house—was an event the memory of which will remain with me so long as the Yosemite is not forgotten. Such an oyster soup! ! ! Long life to Mistress Gobin at Crane's Flat! From 4 o'clock Tuesday morning to 10 o'clock Tuesday night was a day of hard staging. The evening ride from Sonora to Murphys was dangerously romantic and terribly fatiguing. I would not repeat it for a sight of all the trees in California. A good hotel had restored us in a measure by 7 o'clock next morning at which time we were again in motion for the Calaverus Big Trees, 15 miles from Murphys. It requires all day to go up to the Trees, make one visit and get back to Murphy's. The trees are a curiosity of the first class. There are some 90 or 100 in number and vary in diameter from 15 to 30 or 32 feet, and are from 250 to 400 feet high. One of them has been cut down at a heavy cost and an Octagon House, 30 feet across, is built on the stump.

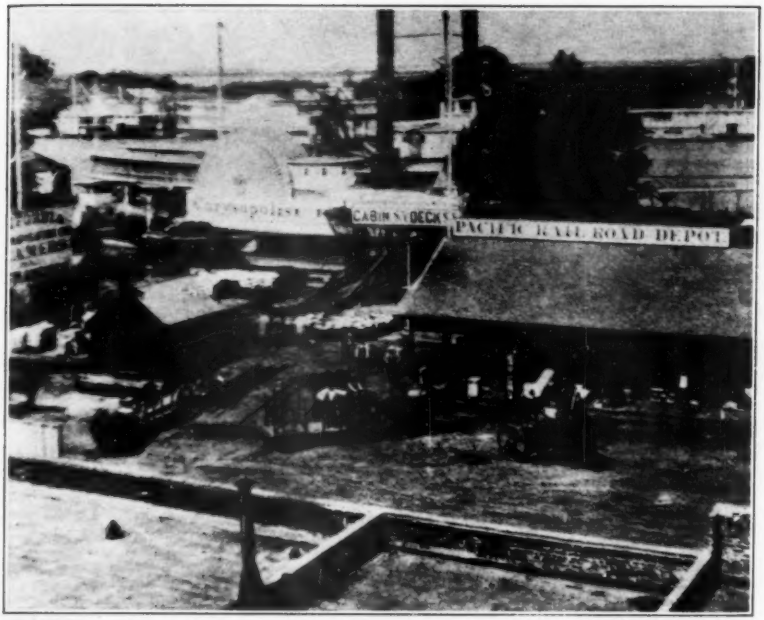
At 1 o'clock Thursday morning, our party was again in motion towards Stockton. Twelve hours of hard riding brought us through in time for a lunch and the steamboat at 2 P. M. for San Francisco, where we found ourselves on Friday morning thoroughly fatigued with the journey but in nowise sorry or disappointed for having made the trip to the Yosemite.

On Friday made a visit to Woodwards Garden and the Anatomical Museum. In the evening went to the Chinese Theatre. Late in the evening the Colfax party reached San Francisco.

This morning I called on Mr. Bowles and wife who are with Colfax. Found them in good spirits and much pleased with all they have seen. At 11:30 went to Oakland and Clinton to see Mrs. Pearsons and her brother Frank. After a pleasant visit of two hours, returned to the city and made a pleasant visit to the Chinese quarter where an hour was spent in the stores and shops, buying a few trinkets. Wrote home this morning—and received this morning, the first letter since we left. It was pleasant reading.

August 15th, 1869

Attending Dr. Cox' church this morning accompanied by Mr. Culinan, clothing merchant, formerly employed by Tinkham at Springfield. In the afternoon called on P. Keally, who worked at my shop for many



Steamer Landing and Pacific R. R. Depot—Sacramento, Calif.

Down Passenger train in Dixie Cut, above Gold Run, Calif.

Cisco, Calif.—1865. Down freight leaving for Sacramento.

years, cutting bolts. Patrick recently has lost his wife and is now quite alone and undetermined what to do.

August 16th, 1869

Visited points of interest in the city, among others the Anatomical Museum, which is remarkably fine.

August 17th, 1869

Spent the day in a visit with Mr. J. P. Morgan of New York. To the New Almaden Quicksilver mine. Saw some fine farming country.

August 18th, 1869

Wrote home. Visited the Dry Dock* at the south part of the city by invitation of Mr. Culinan. Called on W. Barrus, Esq. at his office, made a call at the California Bank and after dinner spent an hour with my aunt and cousins at the home of Judge McHenry. It was a pleasant and happy hour.

*NOTE: During the Civil War the Monitor "Comanche" was built here but never saw service.

August 19th, 1869

Left San Francisco at 7 A. M. by steam ferry for Vallejo (Cal. Pacific Ry. ferries); thence by cars to Calistogo (Vallejo to Callistoga—Napa Valley Ry. In 1869 the Cal. Pacific ran only from Vallejo to Sacramento. The Cal. Pacific did not get control of the Napa Valley Ry. until about 1872) where we took lunch at 12 M. We go by invitation of J. P. Morgan of New York, who travels with Mrs. Morgan, her sister—Miss Tracy, of New York and Mrs. Mary Goodwin of Hartford, three as thorough ladies as may be seen together in a life time. Mr. Morgan and party were the guests of the California Pacific R. R. Co., and everything is furnished. After lunch we were taken in cars of Mr. Foss, the driver of California, who set us down safely at the Geysers over the old road at 6 o'clock. The last two miles down a hill of 1900 feet being accomplished in just ten minutes, with six horses, said to be the quickest run with six horses. I do not care to repeat the ride. The geysers have a suggestiveness of the infernal. Steam issues from a ravine in many places and brings to the surface vapors of sulphur, alum, etc. in large quantities. The boiling of a pot is seen in every little pocket where water accumulates. After an hours visit came supper. Then a 15 mile ride back to the house of Mr. Foss, reached at 11 P. M. It was a beautiful moonlight ride and was followed by a sound sleep in deliriously sweet beds.

Called at 6 A. M. for breakfast and which was all that could be desired in such a place. At 8 o'clock started for Santa Rosa and a ride down the valley of the Russian River and thence to Napa. What fields for hay and grain; what soil; what fertility! Stopped for a short visit and lunch at Mr. Hoods, a Scotch farmer, who formerly owned 16,000 acres, but has lately reduced his ranch to one or two thousand. A vineyard and fruityard two thousand feet square! Think of it! Kept the

Cisco, Calif.—1868. Down freight leaving for Sacramento.

cars waiting for our party 30 minutes. Pleasant ride to Vallejo, when about 6 P. M. we started on our return home, greatly delighted with our visit to the geysers—an event never to be forgotten. Sacramento and supper at a restaurant between 9 and 10 P. M. What quantities of wheat at the railroad stations! Millions of sacks is not exaggeration!

August 21st, 1869

Breakfast at 5:45 A. M. and at 6.30 the train for Omaha is in motion. In the cars we find Mr. and Mrs. Julien of Indiana and Mr. Martin N. Willis of St. Louis, from whom I got some knowledge of the Chinese religion. Rode on the engine from Colfax to Cisco, through the boldest of the Sierra Nevada construction.

Truckee River sinks into Pyramid Lake, as Humbolt sinks in the lake of that name. Follow the former about 100 miles from Donner Lake to White Plains, then follow up the Humbolt 250 miles, rising 1500 feet, through a barren valley to Humbolt Wells, then ascend 750 feet in 25 miles over a barren summit and descend 220 feet to Toano—dinner.

August 22nd, 1869

Had a ride on the engine yesterday from Colfax to summit and today from the Wells to Toano. The location of the road favors the river quite too much. Sage brush everywhere. Large quantities of the—— cedar wood about the road. Passengers few—not exceeding 100. Had a nice lunch with Mr. Morgan and party at noon. Dinner about 3 P. M. at Toano—was dreadfully poor. Supper at Terrace—no better. Terrace is in the midst of a narrow desert where nothing but the most stunted sage brush gets root. Reached Promontory at 10 P. M. (or 11 P. M.). The desolation of this region cannot be surpassed. No animal or insect life (excepting flies at the stations) can find subsistence.

August 23rd, 1869

Rose at 4:15 near Uintah and rode on the rear platform to Echo, thro' Devil's gate, Weber canyon and on engine from Echo, up Echo canyon. The road on this part is well located and is nearly completed. From Wasatch to next station East, road very rough, but construction train and trackmen are at work on it. The road here has an excellent location. Face of the country greatly improved since yesterday, but no trees are seen and very little grass in the valleys. East of Wasatch the road is laid upon a roadbed for 15 or 20 miles to a summit and then descends by a remarkable detour to Piedmont. It rains—drizzling and cold. 12:45—near Carter. Rain is over but quite cool. Road narrow but track is in good order. Very poor dinner. Man who kept the house was shot three weeks ago in an altercation about the price of a dinner. Learn from Road master that old men are fast being sent off and new men from Salt Lake are coming in as workmen. Drainage here is towards the south. At Church Buttes is a deep well in very soft mud rock —but it produces no water. Wasatch range of mountains in plain sight and covered with snow which sparkles beautifully in the sunlight. The

geological formation is soft clay rock, easily decomposed upon exposure. Extra from west of Church Buttes to and through Green River canyon. Track in good order. Work is commenced on the bridges near Granger.

At Green River the clay rock is surmounted with darker colored and harder sand stone. Bridges not built and bridge material in bad order. At or near Point of Rocks, the geological formation becomes more rocky as seen in the cliffs. Bitter Creek passed in the night. Appearance of the country desolate in the extreme.

August 24th, 1869

Breakfast at Laramie. Rode with Mrs. Morgan on engine from Laramie to Sherman. Conductor from Promontory killed by striking a bridge. Dinner at Cheyenne and supper at Sidney—both very poor. The afternoon and evening dusty travelling for the first time, the rain having most of the way preceded us. The road in good condition. Slight commotion among passengers on report that Indians placed ties on track last night before up train.

August 25th, 1869

Breakfast at Grand Island—the poorest yet! How different the bread here from that of California! Arrived at Omaha about 1 P. M. Dined at Cozzens Hotel. Called on Col. Haussuorn and his assistant, Mr. Meade, the new officers of the Road. Found them agreed to my view that the Engineers and Conductors, etc. were worked too hard and too irregularly and that Chinese labor should be put upon the road as soon as practicable. Received letters from home where all is reported as going well. At 3 P. M. crossed the River with Mr. Morgan and his party (including also Hon. Mr. Julien and wife of Indiana) and at 5 P. M. were on our way to Cedar Rapids.

August 26th, 1869

Reached Cedar Rapids at 5:30 A. M. and awaited the arrival of Mr. J. Crerar of the C. A. & St. L. R. R. and Mr. Newell, Vice President of the Illinois Central R. R., who at 8:30 took charge of our party as his guests and started by extra train for Farlee on the Iowa Division of the Illinois Central and thence for Cedar Falls and Fort Dodge. Had a lunch in the train and dinner or supper at——(name omitted). Reached Fort Dodge at 9 P. M. Went for a walk to see the town, Diogenes like, with a lantern. It is a large place—5,000 people. Returned between 10 and 11 o'clock.

August 27th, 1869

At 6 this morning found our car at Charles City in the midst of a heavy shower. Returned over the track by which we had come (called the Charles City Branch)—breakfasted at the little town of Nashua—proceeded to the Junction and thence towards Dubuque. At 1 P. M. met four freight trains going west, largely loaded with lumber, indicating a healthy condition of the country. In fact the crops all along the

road are a matter of surprise by their extent and quality. Lunch spread in cars at 1:30. Reached Dubuque about 5 P. M. in a heavy thunder storm which lasted with slight interruptions until midnight. In spite of the rain we were met at the depot by Hon. Allison, M. C., of the district and after tea, taken to his house for a pleasant evening chat. Mr. Allison had recently been to California. Slept in the car on station grounds. The night will be memorable to all our party for the mosquitoes we encountered.

August 28th, 1869

Left Dubuque with our car attached to the regular train for Mendota. Had a fine view of the bridge over the Mississippi in the early morning. 'Tis a noble structure! Passed through Galena—saw the indications of mining on the hillsides. Country quite uneven and broken, but very beautiful. Crops abundant further on, but wheat crop suffering greatly from the wet. Dined at Mendota, talked with the landlord—one of Uncle Jerry Warrens old pupils in the art of Hotel Keeping. Came into Chicago over the C. B. & Q. R. R., arriving between 4 and 5 P. M., delighted with our excursion since Thursday morning and especially grateful to our Heavenly Father who has so greatly blessed us in all this long journey between San Francisco and our homes. May His kind protection still be with us!

August 29th, 1869

Sherman House, Chicago, Sunday. Called on Mr. and Mrs. Parker and took lunch with them after church. Also spent an hour at the house of Mr. Hawkins. Met the Hon. J. F. Wilson at the Tremont House. In the evening went with the Morgan family to hear Bishop Eastburn preach.

August 30th, 1869

Made a call on Mr. Sargeant of the Michigan Central R. R. Remonstrated with him on the subject of 30 hour trains to New York and found him to my views, but the time had been adopted on his road by the necessity of keeping up with the other great lines. Called on R. R. Mason and was delighted to find him leading a quiet, contented and happy christian life. Spent an hour with C. Chesbrough, Esq., City Engineer—a man universally beloved by those who know him. A short call on N. Chapin when he told me his misfortunes they excite my warmest sympathy for a most worthy man and loved friend. The recent burning of his shops involved a loss of $15,000.00 beyond insurance. The falling of a bridge abutment on which his men were placing a superstructure had resulted in killing of 6 of his men and seriously injuring several others. Some *rum* people had set fire to and burned the little church just completed at his village. Altogether he is quite a sufferer but his courage is good and he remarked that in the face of all he should get ahead some this year. Left Chicago at 5:15 P. M. in company with J. P. Morgan and family. Tea on cars. These cars are attracting a large share of travel. Three of them on this train.

August 31st, 1869

A fine rest last night and fair breakfast this morning. Passed Detroit Ferry without waking. The fast train yesterday ran into a freight train demolishing three cars, said to have been a little ahead of time. The speed of this train is fearful. Nobody seems to desire it. Everybody doubts its expediency.

(The illustrations which accompany this article are from the collection of Mr. D. L. Joslyn, our Resident Western Director. Mr. Joslyn has spent much time in making a collection of prints touching not only on the motive power of the early California roads, but important places and early scenes as well.)

Our Exchange Department

FOR several years this Society has maintained for the benefit of such members as wished to participate in it, a medium of exchange of photographs. The old method has had its limitations and drawbacks but a recent ruling of the Post Office Department whereby our exchange albums must be sent by first class mail has caused the Society to make a change in their methods.

Accordingly, this fall, a new method will be tried and our members who use this department are asked to adhere strictly to the rules, on account of postal regulations. Any or all prints, as many as you wish, must be first sent to our Exchange Manager. There must be no writing on the reverse side, but the description and details must accompany them on a separate sheet. These prints will be placed in an album, the descriptive matter will be printed in the album by our Exchange Manager together with the name of the member who sends in the prints. Albums sent to our members will be for inspection purposes only. NO PRINTS MUST BE REMOVED FROM ANY ALBUM. A member wishing to procure a print which he desires must write the member submitting the prints and the method of exchange will be determined by the two members. Do not retain the album longer than a week and then send it on to the next member on the list. Prints not found satisfactory will be returned by the Exchange Manager. Such prints that have made the rounds may be had upon payment of postage to cover their return.

We feel that this method of exchange places all members on the same basis. An album starts from the Exchange Manager and every one on that circuit has the same opportunity of procuring any print in the original album. This is an item never provided in the old system of exchange. We believe this method will be found more satisfactory by the majority of our members, the success of the exchange depends upon how rapidly the albums cover the circuit and upon the stipulation that no prints must be removed from the albums. Any of our members who desire to participate in this exchange are urged to get in touch with our Exchange Manager, Mr. Harry Cotterell, Sr., 808 South Orange Ave., Newark, New Jersey.

Locomotives of the Boston & Maine Railroad

By Chas. E. Fisher

IN this series of articles we have given at no little length the original locomotives of the Boston & Maine R. R., the Eastern R. R., the Northern (New Hampshire) R. R. and those from the Boston & Lowell R. R. The next group of locomotives in the Boston & Maine R. R. roster came from the Connecticut & Passumpsic Rivers R. R.

This road was chartered in 1835 but it was not until November 9, 1848 that it was opened for service from White River Jct., Vt. to Wells River. A year later service was extended to St. Johnsbury, Vt. On November 1, 1857 the road reached Barton, Vt., and on October 5th, 1863, the international boundary (Newport, Vt.) was reached, 110.3 miles.

The importance of another northern outlet for traffic was constantly before the directors of this company. The Massawippi Valley Ry., chartered in 1862, opened from the Canada Line to Lenoxville, P. Q. on July 1, 1870 and leased to the Connecticut & Passumpsic Rivers R. R. on the same date, furnished them with this desired outlet. So far as can be learned the Massawippi Valley R. R. owned no locomotives or equipment. On January 1, 1887, the Connecticut & Passumpsic Rivers R. R. was leased to the Boston & Lowell R. R., the lease being transferred to the Boston & Maine R. R. when the latter acquired the Boston & Lowell R. R.

Turning now to the list of locomotives as arranged by the late H. P. Yeaton, a close examination of the early reports of the Connecticut & Passumpsic Rivers R. R. furnishes sufficient proof that Mr. Yeaton's list contains several errors. As the result the revised list will be given herewith. The first roster of locomotives appears in the Report of 1860, as follows:

Addison Gilmore	Value $7500.00	(Amoskeag	1852)
Dartmouth	7000.00	(Taunton	1851)
Green Mountain Boy	6500.00	(Hinkley & Drury	1848)
Caledonia	5000.00	(Hinkley & Drury	1848)
Enterprise	6000.00	(Latham	1853)
Orleans	6300.00	(Hinkley & Drury	1848)
Magog	7800.00	(C & P R R R	1859)
Orange	7500.00	(Hinkley & Drury	1848)

These were the first engines owned by the road. The "Clyde" was used for construction purposes, used by the road for a short time, repaired, and then went elsewhere.

The arrangement of these locomotives is the same as previously used in our bulletins.

CONNECTICUT & PASSUMPSIC RIVERS LOCOMOTIVES

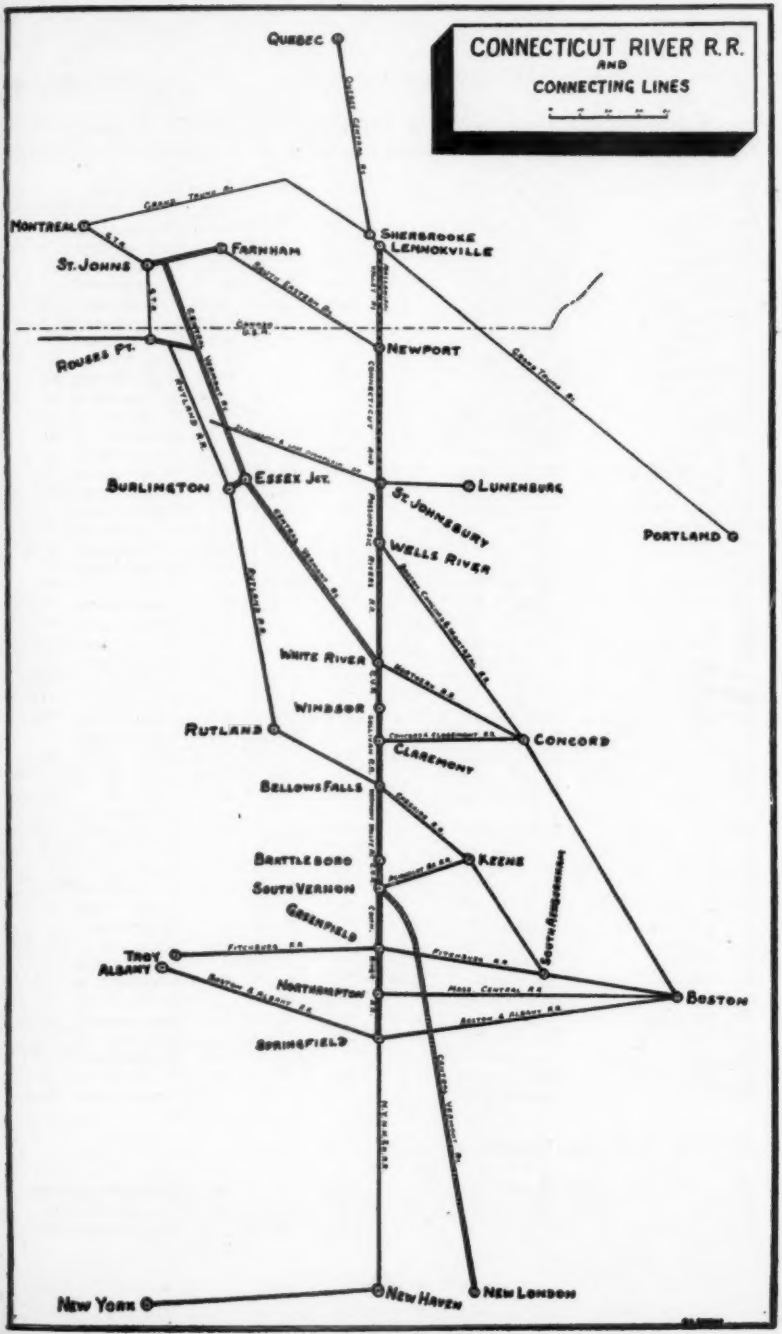
	Clyde	Locks & Canal Co.		1841			Formerly the "Plymouth" on Western (Mass.) R R—Sold 1865
30	Orange	Manchester	#1331	1887	17x24"	4-4-0	
413	Orange					4-4-0	Scrap B & M 1910
1	Caledonia	Hinkley & Drury	# 188	1848	16x20"	4-4-0	Scrap—C & P
1	Caledonia	C & P R R R		1867	?	4-4-0	Scrap—C & P
1	Hubbard Hastings	Manchester	#1267	1886	15x24"	4-4-0	
414	Hubbard Hastings					4-4-0	Scrap—B & M 1905
2	Green Mountain Boy	Hinkley & Drury	# 200	1848	16x20"	4-4-0	Scrap—C & P
2	The Boy	C & P R R R		1880	14x24"	4-4-0	Renamed
415	Barnet					4-4-0	Scrap—B & M 1897
3	Orange	Hinkley & Drury Originally named "Oxbow"	# 206	1848	16x20"	4-4-0	Scrap—C & P
3	Alden Speare	C & P R R R		1884	16x24"	4-4-0	
416	Alden Speare					4-4-0	Scrap—B & M 1903
4	Orleans	Hinkley & Drury	# 210	1848	15x20"	4-4-0	Scrap—C & P
4	Orleans	C & P R R R		1883	16x24"	4-4-0	
417	Orleans					4-4-0	Scrap—B & M 1902
5	Dartmouth	Taunton	# 64	1851	15x20"	4-4-0	Scrap—C & P
5	Dartmouth	C & P R R R		1879	16x24"	4-4-0	
418	Dartmouth					4-4-0	Scrap—B & M 1899
6	Addison Gilmore	Amoskeag	# 19	1852	16x20"	4-4-0	Renamed
	Passumpsic	Rebuilt by C & P R R R		1867			Renumbered 11
6	Enterprise	Latham	# 1	1853	?	4-4-0	Scrap—C & P
6	Enterprise	C & P R R R		1878	16x24"	4-4-0	
419	Enterprise					4-4-0	Scrap—B & M 1899
7	Chicopee	New Castle		1844	?	4-4-0	Rec'd from
		Conn. River R. R. in		1854			Scrap—C & P
7	Magog	C & P R R R		1859	?	4-4-0	Scrap—C & P
7	Magog	C & P R R R		1886	16x24"	4-4-0	Renamed
420	Norwich					4-4-0	Scrap—B & M 1902
8	Massawippi	C & P R R R		1865	?	4-4-0	Scrap—C & P
8	Massawippi	C & P R R R		1883	16x24"	4-4-0	
421	Massawippi					4-4-0	Scrap—B & M 1902
9	Union	Manchester	# 80	1866	15x24"	4-4-0	Renamed
422	Hanover					4-4-0	Scrap—B & M 1887
422	Hanover	Manchester		1888	17x24"	4-4-0	
10	Addison Gilmore	Manchester	# 87	1866	14x22"	4-4-0	
423	Addison Gilmore					4-4-0	Scrap—B & M 1889
11	Passumpsic	C & P R R R		1867	15x24"	4-4-0	Formerly #6
424	Passumpsic					4-4-0	Scrap—B & M 1889
12	Josiah Stickney	C & P R R R		1868	16x24"	4-4-0	
425	Josiah Stickney					4-4-0	Scrap—B & M 1894
13	William Thomas	C & P R R R		1869	16x24"	4-4-0	Renamed
426	Gen'l Stannard					4-4-0	Scrap—B & M 1890
14	Henry Keyes	C & P R R R		1870	16x24"	4-4-0	
427	Henry Keyes					4-4-0	Scrap—B & M 1891
15	Emmons Raymond	C & P R R R		1870	16x24"	4-4-0	
428	Emmons Raymond					4-4-0	Scrap—B & M 1889
16	Pony	C & P R R R		1873	?	0-4-0	
429	Pony					0-4-0	Scrap—B & M 1891
17	E. Cleveland	C & P R R R		1871	16x24"	4-4-0	Renamed
430	Wells River					4-4-0	Scrap—B & M 1890
430	Wells River	Manchester		1891	17x24"	4-4-0	Scrap—B & M 1910
18	B. P. Cheney	C & P R R R		1871	17x24"	4-4-0	
431	B. P. Cheney					4-4-0	Scrap—B & M 1889
19	Albert Knight	C & P R R R		1871	17x24"	4-4-0	
432	Albert Knight					4-4-0	Scrap—B & M 1889

20	Thomas Upham	C & P R R R			1872	16x24"	4-4-0	Renamed
433	Ethan Allen						4-4-0	Scrap—B & M 1890
21	Gen'l Chase	Manchester	#	430	1871	16½x24"	4-4-0	
434	Gen'l Chase						4-4-0	Scrap—B & M 1898
22	Col. Pomeroy	Manchester	#	431	1871	16½x24"	4-4-0	
435	Col. Pomeroy						4-4-0	Scrap—B & M 1908
23	H. A. Alden	C & P R R R			1873	16x24"	4-4-0	Renamed
436	Derby						4-4-0	Scrap—B & M 1899
24	F. M. Weld	C & P R R R			1874	16x24"	4-4-0	
437	F. M. Weld						4-4-0	Scrap—B & M 1894
25	Newport	Rhode Island	#	416	1872	16x24"	4-4-0	See Note
25	Amos Barnes	Manchester			1874	16x24"	4-4-0	See Note
438	Amos Barnes						4-4-0	Sold—B & M
26	Col. Foster	Rhode Island	#	311	1871	14x24"	4-4-0	See Note
26	S. S. Thompson	Manchester			1875	15x24"	4-4-0	See Note
439	S. S. Thompson						4-4-0	Scrap—B & M 1894
27	Montreal	Rhode Island	#	417	1872	16x24"	4-4-0	See Note
440	Montreal						4-4-0	Scrap—B & M 1894
28	L. Robinson	Canadian L. W.			1879	16x24"	4-4-0	
441	L. Robinson	Sold to Poulterer & Co.					4-4-0	By B & M
29	W. K. Blodgett	Rhode Island	#1	287	1883	17x24"	4-4-0	
442	W. K. Blodgett						4-4-0	Scrap—B & M 1908

The "Newport", "Col. Foster" and the "Montreal" were received from the South Eastern Counties Ry. in payment for the destruction of the "Orleans" while the latter was loaned to the S. E. Ry., and for the loan of other Connecticut & Passumpsic Rivers R. R. locomotives hired by the South Eastern Counties Ry. Evidence seems to point that the "Col. Foster" was returned to its former owner. The "S. S. Thompson" was originally the "A. G. Dewey" on the Woodstock Ry. This locomotive was found to be too heavy for this little road and the "Newport" was sent over in its place, taking the name—"A. G. Dewey." The "Amos Barnes" was purchased from the Montpelier & Wells River R. R. and was the "Groton" on that road.

One cannot but be impressed with the number of locomotives built at the Lyndonville, Vermont, Shops of this road. In the Report of 1860 we find the notation—"For constructing one new locomotive "Magog", $7800.00." which leads us to believe that the "Magog" was the first locomotive built by the road.

Again, in the Report of 1868, we find—"The new shops at Lyndon will enable this Company to make their repairs economically and manufacture their engines and cars as low as can be done by any corporation." The opening of the Massawippi Valley Ry. caused an urgent need for additional locomotives and rolling stock. The American Locomotive Co. advises that the records of the Manchester Locomotive Works indicates that that company furnished this road with one new locomotive boiler in 1871. The striking resemblance of these C & P R R R locomotives built in their own shops with those built by the Manchester works would lead one to believe that the heavier castings and forgings were furnished by the Manchester Locomotive Works, the road furnishing the other parts and assembling the locomotive. The Manchester records



The Connecticut River Lines.

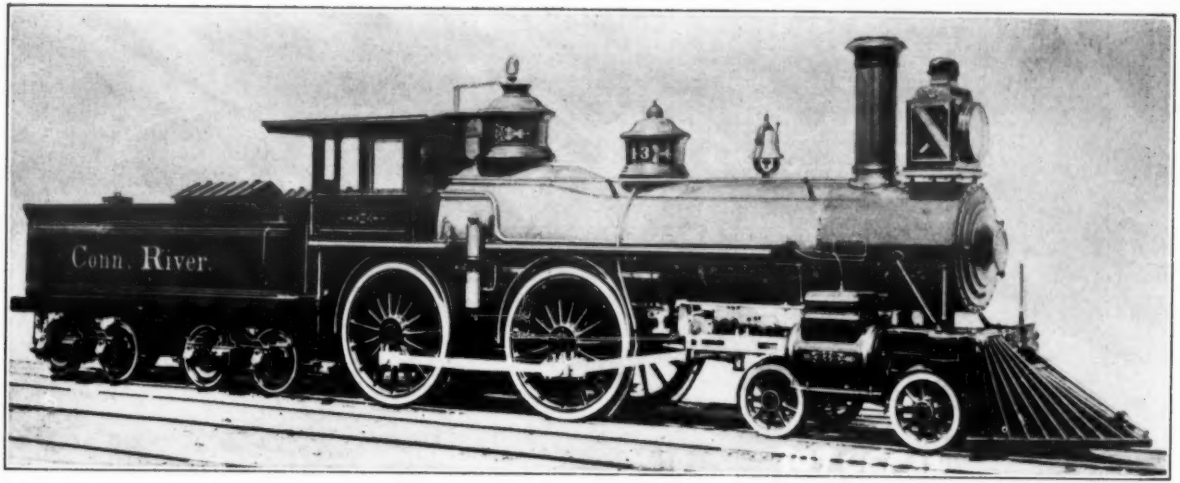
do not substantiate this statement but the appearance of these locomotives does.

Following the Connecticut & Passumpsic Rivers R. R. locomotives came several orders by the Boston & Maine R. R. They were as follows:

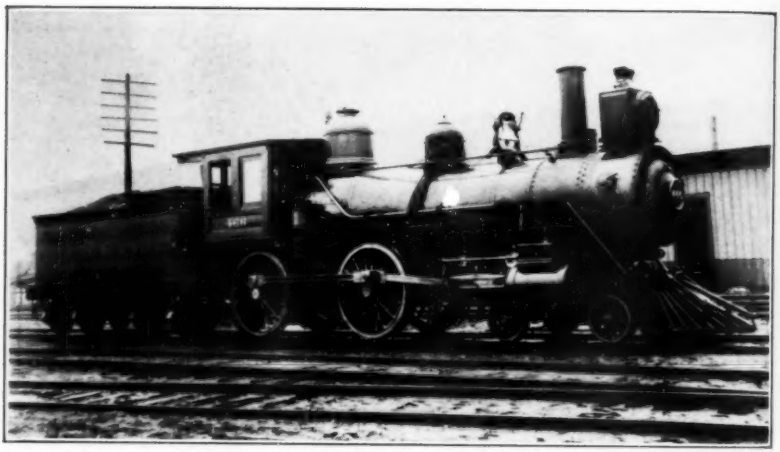
443	Northampton	Manchester		1889	19x26"	4-6-0 Rebuilt at Manchester 1891 4-6-0 Renumbered 1956
444	Farragut	Manchester		1890	18x24"	4-4-0 Renumbered 874
445	Porter	Manchester		1890	18x24"	4-4-0 Renumbered 875
446	Dupont	Manchester		1890	18x24"	4-4-0 Renumbered 876
447	Dahigren	Manchester		1890	18x24"	4-4-0 Renumbered 877
448	Pocahontas	Manchester		1890	17x24"	4-4-0 Renumbered 774
449	Saggahew	Manchester		1890	18x24"	4-4-0 Renumbered 878
450	Pontiac	Manchester		1890	18x24"	4-4-0 Renumbered 879
451	Pioneer	Manchester		1890	16x24"	0-4-0 Renumbered 82
452	Athlete	Manchester		1890	16x24"	0-4-0 Renumbered 83
453	Saturn	Manchester		1890	16x24"	0-4-0 Renumbered 84
454	Derry	Manchester		1890	16x24"	0-4-0 Renumbered 85
455	Quincy	Manchester		1890	16x24"	0-4-0 Renumbered 86
456	Adams	Manchester		1890	16x24"	0-4-0 Renumbered 87
457	Pompanoosuc	Rhode Island	#2527	1891	18x24"	4-6-0 Renumbered 1931
458	Vermont	Rhode Island	#2528	1891	18x24"	4-6-0 Renumbered 1932
459	Col. Brock	Manchester		1891	18x24"	4-4-0 Renumbered 617
460	John Kinsman	Manchester		1891	18x24"	4-4-0 Renumbered 618
461	Diana	Manchester		1891	16x24"	0-4-0 Renumbered 88
462	Pluto	Manchester		1891	16x24"	0-4-0 Renumbered 89
463	Apollo	Manchester		1891	16x24"	0-4-0 Renumbered 90
464	Neptune	Manchester		1891	16x24"	0-4-0 Renumbered 91
465	Jupiter	Manchester		1891	16x24"	0-4-0 Renumbered 92
466	Worcester	Manchester		1891	18x24"	4-4-0 Renumbered 880
467	Gen. Devens	Manchester		1891	18x24"	4-4-0 Renumbered 881
468	Thetford	Manchester		1891	17x24"	4-4-0 Renumbered 777
469	Ticonderoga	Rhode Island	#2539	1891	18x24"	4-6-0 Renumbered 1933
470	Gen. McClellan	Manchester		1891	19x26"	4-6-0 Renumbered 1968
471	Gov. Brooks	Rhode Island	#2617	1891	16x20"	0-4-4 Renumbered 47
472	Gov. Carver	Rhode Island	#2618	1891	16x20"	0-4-4 Renumbered 48
473	Gov. Winthrop	Rhode Island	#2619	1891	16x20"	0-4-4 Scrap—B & M 1903
473	Not Named	Schenectady		1904	20x26"	4-6-0 Formerly #600, Renumbered 2107
474	Gen. Custer	Manchester		1891	18x24"	4-4-0 Renumbered 882
475	Gen. Burnside	Manchester		1891	18x24"	4-4-0 Renumbered 883
476	Phoenician	Manchester		1891	18x24"	4-4-0 Renumbered 884
477	Grecian	Manchester		1891	18x24"	4-4-0 Renumbered 885
478	Tuscan	Manchester		1891	18x24"	4-4-0 Renumbered 886
479	Bethany	Manchester		1891	18x24"	4-4-0 Renumbered 887
480	Pequot	Manchester	#1498	1891	16x24"	0-4-0 Scrap—B & M 1910
481	Pawnee	Manchester	#1499	1891	16x24"	0-4-0 Renumbered 93
482	Ottawa	Manchester	#1500	1891	16x24"	0-4-0 Renumbered 94
483	Huron	Manchester	#1501	1891	16x24"	0-4-0 Renumbered 95
484	Mohican	Manchester	#1502	1891	16x24"	0-4-0 Renumbered 96
485	Katahdin	Manchester		1891	17x24"	4-4-0 Renumbered 778
486	Gov. Andrew	Manchester		1891	17x24"	4-4-0 Renumbered 779
487	Thorndike	Manchester		1891	17x24"	4-4-0 Renumbered 780
488	Belknap	Manchester		1891	17x24"	4-4-0 Renumbered 781

The following locomotives were never named:

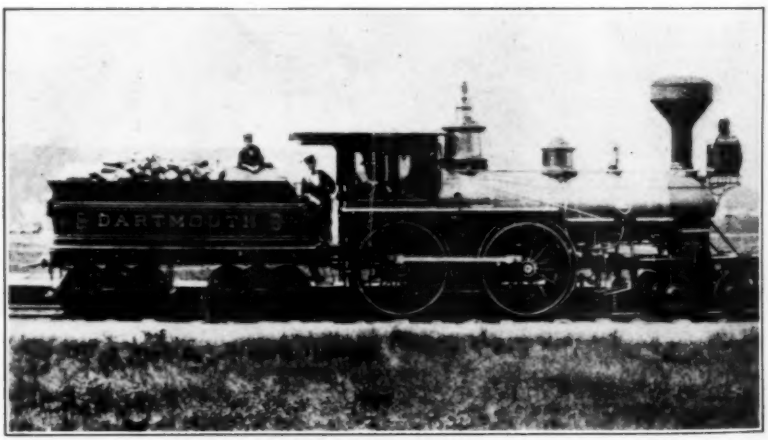
489	Manchester	1892	18x24"	4-4-0	Renumbered 900
490	Manchester	1892	18x24"	4-4-0	Renumbered 901
491	Manchester	1892	18x24"	4-4-0	Renumbered 902



Connecticut River R. R. #43—Schnectady L W. 1880.



"A Good Engine" Boston & Maine #466—Manchester, 1891.



Ct. & Passumpsic Rivers R. R. "Dartmouth"—Taunton L. W. 1851.

492	Manchester		1892	18x24"	4-4-0	Renumbered 903
493	Manchester		1892	18x24"	4-4-0	Renumbered 904
494	Manchester		1892	18x24"	4-4-0	Renumbered 905
495	Manchester		1992	18x24"	4-4-0	Renumbered 906
496	Manchester		1892	18x24"	4-4-0	Renumbered 907
497	Manchester		1892	18x24"	4-4-0	Renumbered 908
498	Manchester		1892	18x24"	4-4-0	Renumbered 909
499	Manchester		1892	19x26"	4-6-0	Renumbered 1961
500	Manchester		1892	19x26"	4-6-0	Renumbered 1962
501	Manchester		1892	19x26"	4-6-0	Renumbered 1963
502	Manchester		1892	19x26"	4-6-0	Renumbered 1964
503	Manchester		1893	18x24"	4-6-0	Renumbered 1920
504	Manchester		1893	18x24"	4-6-0	Renumbered 1921
505	Manchester		1893	19x26"	4-6-0	Renumbered 1970
506	Manchester		1893	19x26"	4-6-0	Renumbered 1971
507	Manchester		1893	19x26"	4-6-0	Renumbered 1972
508	Manchester		1893	19x26"	4-6 0	Renumbered 1973
509	Manchester		1893	19x26"	4-6-0	Renumbered 1974
510	Manchester		1893	19x26"	4-6-0	Renumbered 1975
511	Manchester		1893	19x26"	4-6-0	Renumbered 1976
512	Manchester		1893	19x26"	4-6-0	Renumbered 1977
513	Manchester		1893	19x26"	4-6-0	Renumbered 1978
514	Manchester		1893	19x26"	4-6-0	Renumbered 1979
515	Manchester	#1599	1893	18x24"	4-4-0	Renumbered 910
516	Manchester	#1600	1893	18x24"	4-4-0	Renumbered 911
517	Manchester	#1601	1893	18x24"	4-4-0	Renumbered 912
518	Manchester	#1602	1893	18x24"	4-4-0	Renumbered 913
519	Manchester	#1603	1893	18x24"	4-4-0	Renumbered 914
520	Manchester	#1604	1893	18x24"	4-4-0	Renumbered 915
521	Manchester	#1605	1893	18x24"	4-4-0	Renumbered 916
522	Manchester	#1606	1893	18x24"	4-4-0	Renumbered 917
523	Manchester	#1607	1893	18x24"	4-4-0	Renumbered 918
524	Manchester	#1608	1893	18x24"	4-4-0	Renumbered 919
525	Manchester	#1609	1893	18x24"	4-4-0	Renumbered 920
526	Manchester	#1610	1893	18x24"	4-4-0	Renumbered 921
527	Manchester		1893	17x24"	0-6-0	Renumbered 120
528	Manchester		1893	17x24"	0-6-0	Renumbered 121
529	Manchester		1893	17x24"	0-6-0	Renumbered 122
530	Manchester		1893	17x24"	0-6-0	Renumbered 123
531	Manchester		1893	17x24"	0-6-0	Renumbered 124
532	Manchester		1893	17x24"	0-6-0	Renumbered 125
533	Rhode Island	#2948	1893	18x24"	4-4-0	Renumbered 832
534	Rhode Island	#2950	1893	18x24"	4-4-0	Renumbered 833
535	Rhode Island	#2951	1893	18x24"	4-4-0	Renumbered 834
536	Rhode Island	#2952	1893	18x24"	4-4-0	Renumbered 835
537	Rhode Island	#2953	1893	18x24"	4-4-0	Renumbered 836
538	Rhode Island	#2954	1893	18x24"	4-4-0	Renumbered 837
539	Rhode Island	#2946	1893	18x24"	0-6-0	Renumbered 139

CONNECTICUT RIVER R. R. LOCOMOTIVES

The Connecticut River R. R. had its beginning with a corporation known as the Northampton & Springfield R. R. Backed by the citizens of Northampton, a charter was secured in 1842 and the road was opened between the two cities, a distance of 17.36 miles in December, 1845. On January 25, 1845, the Greenfield & Northampton R. R. was chartered and authorized to build between those two places, a distance of 19.04 miles. The charter of the Greenfield and Northampton provided for a consolidation with the Northampton & Springfield R. R. This consolidation

was effected on July 8, 1845 under the name of the Connecticut River R. R. On November 23, 1846, the road was opened to Greenfield and on January 1, 1849 was opened to South Vernon, Vermont, making the total distance 50 miles.

Although the road had two keen competitors for traffic it was able to more than hold its own through its careful management and service rendered. When the Rutland R. R. gave up the operation of the Vermont Valley R. R., 1877, the road was operated by the Connecticut River R. R. On October 1, 1880 the Sullivan County R. R. was sold to the Vermont Valley R. R. which gave the Connecticut River R. R. the line into Windsor, Vt. Agreements were made with the Central Vermont R. R. for the operation of through freight and passenger equipment handled by Connecticut River locomotives over the stretches of track owned by the Central Vermont from South Vernon to Brattleboro and from Windsor to White River Jct. On March 1st, 1893 the Connecticut River R. R. was leased to the Boston & Maine R. R. for 99 years and thus ended the independent career of one of the best managed railroads in the State of Massachusetts.

It is with considerable regret the locomotives of the Connecticut River R. R. cannot be presented in chronological order. At the time the Boston & Maine R. R. assigned their serial numbers to the Connecticut River locomotives they appeared to have followed no system whatever. Moreover, some of the Connecticut River engines will be found when we come to consider those from the Vermont Valley and Sullivan County Railroads. In checking the list of locomotives as given by Mr. Yeaton with the Annual Reports of the Connecticut River R. R. there are many discrepancies as to builder and the date; many of the early locomotives were scrapped. We find good evidence that the road constructed more locomotives in their own shops than Mr. Yeaton's list indicates. Curiously enough, only the first twenty numbers of the Connecticut River locomotives carried names, the balance of the locomotives were simply numbered. The names were not removed however, until 1885.

In the Report of 1849, we find the first roster of Connecticut River R. R. locomotives as follows:

Cabot	New Castle Mfg. Co.	1844
Chicopee	New Castle Mfg. Co.	1844
Northampton	Hinkley & Drury	1846
Brattleboro	Hinkley & Drury	1847
Holyoke	Hinkley & Drury	1845
Greenfield	Hinkley & Drury	1846
Ashuelot	Taunton L. W.	1847
North Star	Taunton L. W.	1848
Montreal	New Castle Mfg. Co.	1848
Orion	Springfield Car & Engine Co.	1848
Arcturus	Springfield Car & Engine Co.	1849
Springfield	Springfield Car & Engine Co.	1849

The "Montreal" was sold in 1853 to the Potsdam & Watertown R. R. and the "Cabot" was sold in 1854. Neither of these engines carried Connecticut River numbers.

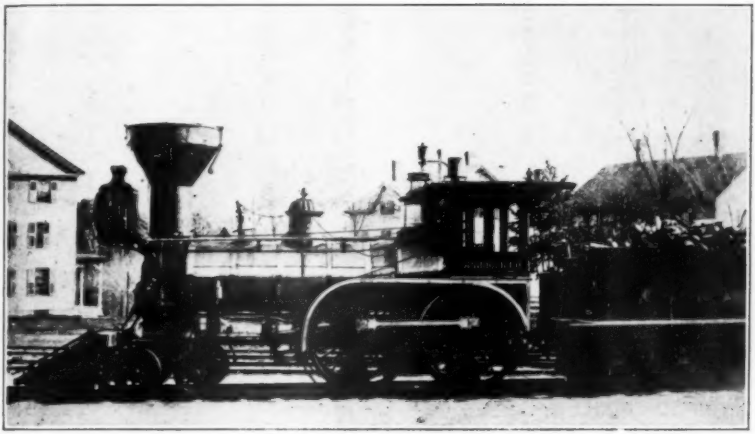
Turning now to the numbers as assigned by the Boston & Maine R. R., we find the following:

13	D. L. Harris	Ct. River R. R.		1866	16x24"	4-4-0	
540						4-4-0	Sold—1895
47		Schenectady	#3987	1893	16x24"	0-4-0	
541						0-4-0	Renumbered 54
5	Springfield	Springfield		1849	?	4-4-0	Rebuilt
	Springfield	Ct. River R. R.		1858	?	4-4-0	Scrap—Ct. R. R. R.
5		Schenectady	#2997	1890	17x24"	4-4-0	
542						4-4-0	Renumbered 715
39		Taunton	# 878	1883	16x22"	0-4-0	
543						0-4-0	Scrap—B & M 1906
	Ashuelot	Taunton	# 6	1847	14x18"	4-4-0	Sold to Taunton L. W.—1857
20	Ashuelot	Taunton	# 731	1880	16x20"	4-4-0	
544						4-4-0	Scrap—B & M 1902
46		Schenectady	#3820	1892	19x26"	4-6-0	
545						4-6-0	Renumbered 1984
16	Pony	Taunton	# 427	1868	12x22"	0-4-0	Scrap—Ct. R R R
16		Schenectady	#3756	1892	17x24"	0-6-0	
546						0-6-0	Renumbered 106
9	Whately	Taunton	# 121	1852	14x20"	4-4-0	Scrap—Ct. R R R
9		Schenectady		1890	18x24"	4-4-0	
547						4-4-0	Renumbered 609
8	Deerfield	Taunton	# 110	1852	15x20"	4-4-0	Scrap Ct. R R R
8	Deerfield	Ct. River R. R.		1879	16x24"	4-4-0	
548						4-4-0	Scrap—B & M 1902
3	Holyoke	Hinkley & Drury	# 55	1845	13½x20"	4-4-0	Sold to Taunton L. W.—1860
3	Holyoke	Taunton	# 277	1861	14x22"	4-4-0	Scrap—Ct. R R R
3		Schenectady	#2924	1889	16x24"	0-4-0	
549						0-4-0	Scrap—B & M 1908
14	Brinsmade	Taunton	# 396	1866	16x24"	4-4-0	
550						4-4-0	Sold—B & M 1895
18	Hatfield	Taunton	# 555	1872	16x24"	4-4-0	
551						4-4-0	Scrap—B & M 1897
35		Taunton	# 823	1881	17x24"	4-4-0	
552						4-4-0	Scrap—B & M 1902
11	North Star	Taunton	# 17	1848	14⅝x18"	4-4-0	Sold to Watertown & Rome R. R.
11	North Star	Springfield		1853	?	4-4-0	Scrap—Ct. R R R
11	North Star	Ct. River R. R.		1869	?	4-4-0	Scrap—Ct. R R R
11		Schenectady	#3433	1891	16x24"	0-4-0	
553						0-4-0	Renumbered 55
21		Hinkley		1874	16x22"	4-4-0	See Note
554						4-4-0	Scrap—B & M 1903
1	Northampton	Hinkley & Drury	# 80	1846	12x18"	4-4-0	Scrap—Ct. R R R
1	Northampton	Ct. River R. R.		1865	15x22"	4-4-0	Scrap—Ct. R R R
1		Taunton	# 931	1887	16x24"	0-4-0	
555						0-4-0	Scrap—B & M 1906
37		Taunton	# 835	1882	16x22"	0-4-0	
556						0-4-0	Scrap—B & M 1908
4	Greenfield	Hinkley & Drury	# 59	1846	13½x20"	4-4-0	Scrap—Ct. R R R
4	Greenfield	Ct. River R. R.		1869	15x20"	4-4-0	Scrap—Ct. R R R
4		Schenectady	#3260	1890	18x24"	4-4-0	
557						4-4-0	Renumbered 829
15	Mt. Tom	Ct. River R. R.		1868	16x22"	4-4-0	
558						4-4-0	Scrap—B & M 1898

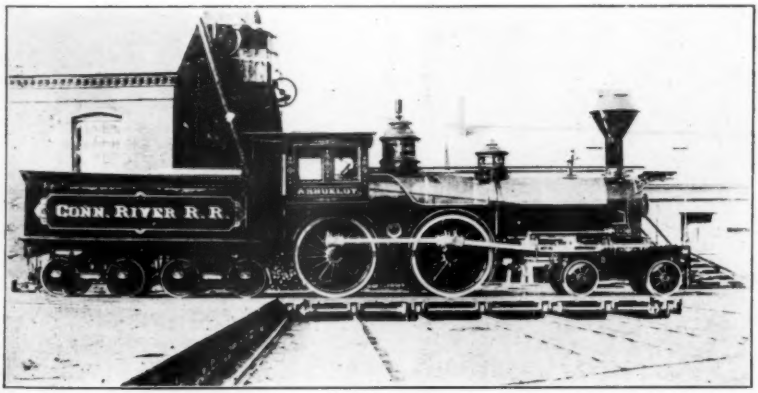
43		Schenectady	#	1880	1884	17x24"	4-4-0	
559							4-4-0	Renumbered 710
24		Taunton	#	773	1881	16x24"	0-4-0	
560							0-4-0	Scrap—B & M 1902
40		Schenectady	#	1720	1883	17x24"	4-4-0	
561							4-4-0	Scrap—B & M 1907
44		Schenectady			1889	17x24"	0-6-0	
562							0-6-0	Renumbered 107
6	Orion	Springfield			1848	?	4-4-0	Rebuilt
	Orion	Ct. River R. R.			1858	?	4-4-0	Scrap—Ct. R R R
6	Orion	Taunton	#	619	1873	16x22"	4-4-0	
563							4-4-0	Scrap—B & M 1899
36		Taunton	#	824	1881	17x24"	4-4-0	
564							4-4-0	Scrap—B & M 1903
19	Brightwood	Ct. River R. R.			1875	17x22"	4-4-0	
565							4-4-0	Sold—Poulterer & Co.
2	Brattleboro	Hinkley & Drury	#	90	1847	12x18"	4-4-0	Scrap—Ct. R R R
2	Brattleboro	Ct. River R. R.			1871	16x24"	4-4-0	
566							4-4-0	Scrap—B & M 1902
30	No Name	Taunton	#	791	1881	17x24"	4-4-0	
567							4-4-0	Scrap—B & M 1908
12	J. Mulligan	Taunton	#	228	1857	15x22"	4-4-0	
568							4-4-0	Sold—Poulterer & Co.
42	No Name	Schenectady	#	2144	1886	17x24"	4-4-0	
569							4-4-0	Renumbered 712
34	No Name	Taunton	#	808	1881	17x24"	4-4-0	Rebuilt
570		B & M R. R.			1900		4-4-0	Renumbered 672
7	Arcturus	Springfield			1849	?	4-4-0	Rebuilt
	Arcturus	Ct. River R. R.			1857	?	4-4-0	
7	No Name	Schenectady	#	2341	1887	17x24"	4-4-0	
571							4-4-0	Scrap—B & M 1910
45	No Name	Schenectady	#	2604	1889	17x24"	4-4-0	
572							4-4-0	Renumbered 714
	Chicopee	New Castle			1844	?	4-4-0	Sold—Watertown & Rome R. R.
	Chicopee	Springfield sold to Potsdam & Watertown R. R.			1853	15x20"	4-4-0	Loaned—Ct & Pass R. R.
10	Chicopee	Taunton			1855	14x20"	4-4-0	Scrap—Ct. R R R
10	No Name	Schenectady	#	2535	1888	17x24"	4-4-0	
573							4-4-0	Renumbered 713
22	No Name	Hinkley	#	1152	1873	?	4-4-0	See Note
574							4-4-0	Scrap—B & M 1895
17	Ingleside	Taunton	#	485	1870	14x22"	0-4-0	
575							0-4-0	Sold—B & M 1895
23	No Name	Hinkley			1873	16x22"	4-4-0	See Note
576							4-4-0	Scrap—B & M 1895

Note—Connecticut River R. R. Nos. 21, 22 and 23 were purchased from the Springfield, Athol & Northeastern R. R. No. 21 was formerly the "Enfield" No. 1.

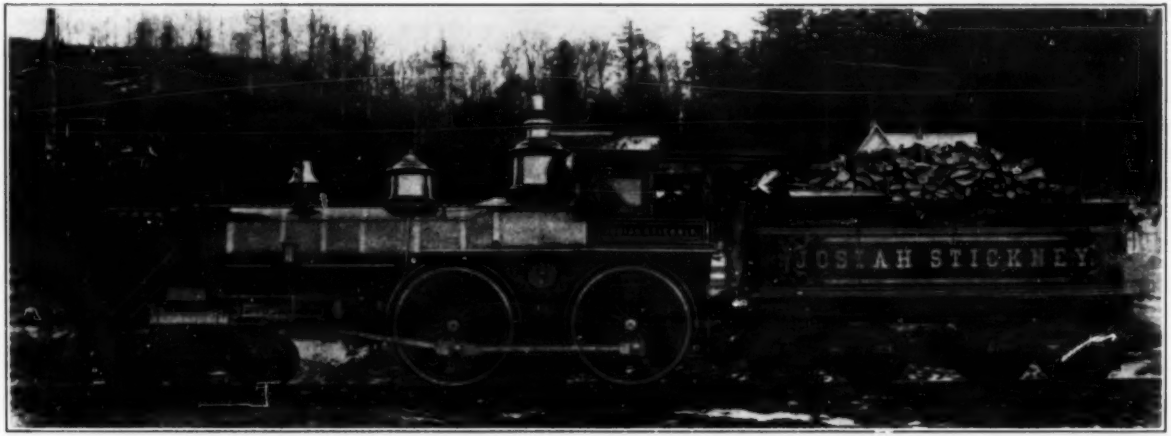
The balance of the Connecticut River R. R. locomotives will appear in their places occupied in the Boston & Maine series.



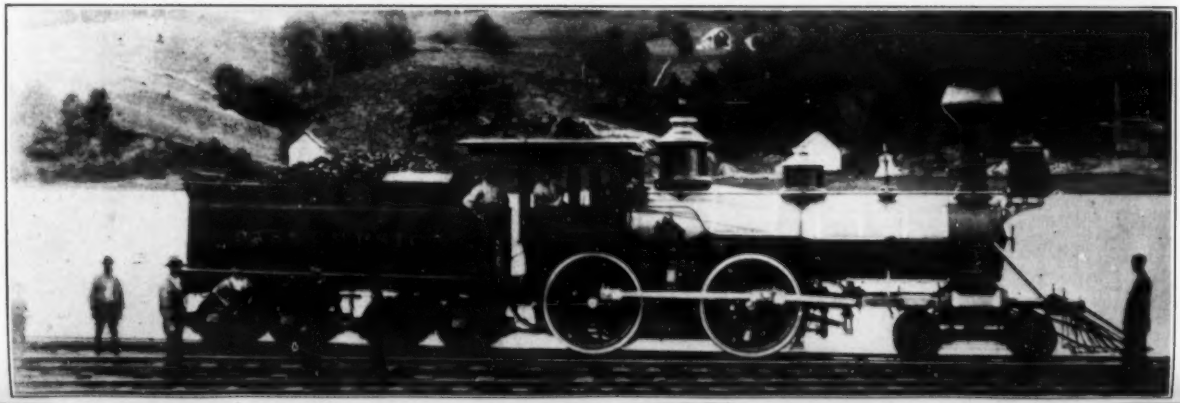
Connecticut River R. R. "Springfield"—Rebuilt by Ct. River R. R. 1858.



Connecticut River R. R. "Ashuelot"—Taunton L. W. 1880.



Ct. & Passumpsic Rivers R. R.—"Josiah Stickney" C. & P. R. R. R. 1868. —Courtesy J. W. Merrill



The following engines were purchased by the Boston & Maine R. R.

576	No Name	Rhode Island	1896	19x24"	4-4-0	Renumbered	1132
577	No Name	Rhode Island	1896	19x26"	4-4-0	Renumbered	1133
578	No Name	Manchester	1896	19x24"	4-4-0	Renumbered	1140
579	No Name	Manchester	1896	19x26"	4-4-0	Renumbered	1141
580	No Name	Manchester	1896	19x26"	4-4-0	Renumbered	1142
581	No Name	Manchester	1896	19x26"	4-4-0	Renumbered	1143
582	No Name	Manchester	1896	19x26"	4-4-0	Renumbered	1144
583	No Name	Rhode Island	1896	19x24"	4-4-0	Renumbered	1134
584	No Name	Rhode Island	1896	19x24"	4-4-0	Renumbered	1135
585	No Name	Rhode Island	1896	19x26"	4-4-0	Renumbered	1136
586	No Name	Rhode Island	1896	19x26"	4-4-0	Renumbered	1137

In Bulletin No. 34 will follow the engines from the Portland & Rochester R. R., Vermont Valley R. R., Sullivan County R. R. and St. Johnsbury & Lake Champlain R. R. The balance of the Connecticut River R. R. locomotives will be found in those from the Vermont Valley and Sullivan County Railroads.

Since the appearance of the Boston & Lowell list of locomotives, the following errors have been called to my attention and are now corrected as follows:

42	Groton	Rhode Island	# 176	1870	16x24"	4-4-0	Renamed
342	Harrisville	Sold by B. & M.		to		4-4-0	Poulterer & Co.
43	Eagle	Rhode Island	# 178	1870	16x24"	4-4-0	Renamed
343	Falcon	Sold by B & M in		1897		4-4-0	Poulterer & Co.
65	Marlboro	Schenectady	#1444	1881	17x24"	4-4-0	Rebuilt
365	Marlboro	Manchester		1904	17x24"	4-4-0	Renumbered 683
10	Woburn	B & L R. R.		1850	12x18"	4-4-0	Scrap—B & L 1880
10	Woburn	Schenectady	#1443	1881	17x24"	4-4-0	
310	Woburn	Rebuilt &				4-4-0	Renumbered 680

The above two Schenectady engines came from the Massachusetts Central R. R.

One of our members goes on to state that the "Muzzy" No. 11 was renamed the "Titania" either in the late seventies or early eighties and was again renamed "Nashua". Also that the name "Hudson" was carried by an engine numbered 70 at one time.

Upon the appearance of the Boston & Lowell R. R. locomotives in Bulletin No. 31, one of our members called the attention of the Editor to an evident error in the wheel arrangement of their first locomotive—the "Stephenson". The Editor wishes to correct the impression of the wheel arrangement of the first five engines built by the Locks & Canal Co. The first five engines furnished the Boston & Lowell R. R. from the Locks & Canal Co. were evidently of Stephenson's "Planet" type having one pair of driving wheels and a smaller pair of wheels in front—2-2-0 type.

Our member submits that the "Stephenson" was of the same type, not 0-4-0, and his findings were printed in the Boston & Maine Magazine

for June, 1930. He bases his authority on two endorsements on the reverse side of the well known "Planet" type locomotive furnished the Bangor & Piscataquis R. R. by Robert Stephenson. One of these endorsements was made by John B. Winslow, Engineer and later Superintendent of the Boston & Lowell R. R. in 1853, to the effect that the "Stephenson" was "like" this in its opening, June 24, 1835. Another photograph of the same engine, in the possession of Mr. Harry F. Parker bears the same inscription. He also states that the records of the Locks & Canal Co. state that in the construction of their first locomotive they have followed Stephenson's patterns. A statement is also made that the "Stephenson" was rebuilt from a 2-2-0 type to an 0-4-0 type which accounts for the Brown model and the illustration used in our bulletin.

All this is interesting but the Editor feels that it is not conclusive. To support the statements of our member I will state that in Zerah Colburn's "Locomotive Engineering" V. 1 page 31 we find—"The Locks & Canal Co. at Lowell, U. S. commenced the construction of locomotives, after the model of the 'Planet' in 1834" and the names of six engines, together with their dimensions are given—"Patrick", "Lowell", "Concord", "Nashua", "Milford" and "Suffolk". This might be construed to mean that the "Stephenson" was of the "Planet" type, but it would be possible for the Locks & Canal Co. to built locomotives of the "Planet" type and still the "Stephenson" be of the 0-4-0 type.

Again, we find in a paper read by Mr. H. C. Taft, General Agent of the Boston & Maine R. R. at Lowell before the Lowell Historical Society on March 2, 1909, entitled "Early Days of Railroading", page 20—"The engines weighing from 7 to 9 tons, had four large wheels etc." Here Mr. Taft evidently confused the size of the leading wheels of the Locks & Canal Co. engines with the smaller truck wheels of later day and his evidence is not conclusive in the matter of the "Stephenson".

Turning now to our member's evidence, the two engines furnished the Bangor & Piscataquis R. R., photograph of one of which he has used to support his theory were not built by Robert Stephenson. According to Whishaw they were constructed by Rothwell, No. 4, 1832, "Pioneer" and No. 6, 1836, "Bangor". They were, however, constructed from Stephenson's drawings and that the photograph owned by our member was the second of the two, for in 1832 there was not the advanced pattern of hand gearing with one tie only on either side of the boiler and long hand levers.

Mr. J. G. H. Warren in his "A Century of Locomotive Building by Robert Stephenson & Co." states on page 264 that the 0-4-0 or "Samson" type was first built by Robert Stephenson for the Liverpool & Manchester R. R. in 1831 and the names of the first two such engines were the "Samson" and "Goliath". The weight of these engines was about 10 tons each, all of which was available for adhesion, a factor not provided for in the "Planet" type, five tons of which were on the drivers and two tons on the leading wheels. Furthermore we know that the "John Bull" for the Camden & Amboy R. R. and the engine of the same name for the Mohawk & Hudson R. R. were of this same wheel arrangement. Both engines were delivered the year preceding the delivery of the "Stephen-

son", hence the type and wheel arrangement would not be impossible on the Boston & Lowell R. R.

In 1927, this Society, in Bulletin No. 13, reproduced a "Report upon the Locomotive Engines and the Police and Management of several of the Principal Rail Roads in the Northern and Middle States," by Messrs. Knight and Latrobe. The report is dated 1838 and on page 13, under the section devoted to the Boston & Lowell R. R. we read—"Of these machines the company have 6, of which 5 (including the 'Patrick' hereafter mentioned) are exactly alike. The sixth is of Stevenson's make, and weighs a little over 20,000 lbs., and it took on one occasion, 47 cars of merchandise to Lowell, in two hours and a half; the load being equal to 205 tons of 2240 lbs. each." This made a total weight, without tender of 459,200 lbs. Mention is made of a trip of the "Patrick", Locks & Canal engine, hauling a train of 35 cars, total weight including tender of 401,496 lbs. in two hours and 15 minutes. While nothing definite is stated in this report as to the wheel arrangement of the "Stephenson", we can gather two items of interest—the fact that the English-built engine was different than the five Locks & Canal locomotives and that it was apparently more powerful.

Furthermore, one of our members, Mr. C. F. Dendy Marshall, in his "Two Essays in Early Locomotive History", states on page 94—"In 1832 there was a 'Samson' type named 'Stephenson' for the Boston & Lowell R. R."

This then is the burden of proof I can offer in the support that the "Stephenson", the first engine on the Boston & Lowell R. R. was of the "Samson" or 0-4-0 type. Unfortunately the U. S. list of locomotives of 1838 does not definitely state the wheel arrangement and until such documentary evidence can be produced, perhaps it would be well to leave the question open for further discussion though the evidence for the present appears to rest with Mr. Marshall and the report of Messrs. Knight and Latrobe in favor of the "Samson" type.

An Early Locomotive Performance Sheet

A short time ago the Society came into possession of some early documents and among them was a performance sheet of locomotives on the Baltimore & Ohio Railroad for the six months ending March 31st, 1841. It shows very clearly the date each locomotive entered service and the character of service rendered by each locomotive. The comparison of figures of those locomotives using wood for fuel compared with those that burned coal is of genuine interest. The Baltimore & Ohio R. R. opened the line to the north end of Harpers Ferry Bridge on December 1, 1834. The Washington Branch of the Baltimore & Ohio R. R., the first railroad to enter Washington, D. C., was opened on August 25, 1835. This roster, dated about seven years after the road was opened to Harpers Ferry indicates the performance of the early engines on the Baltimore & Ohio R. R.

Statement Exhibiting the Cost of Repairs, Fuel Consumed, and number of miles run by the six months ending March 31st, 1841—as well as the names of builders and dates at

Name of Engines	*By Whom Built*	*Date at which Commenced Running*	*Cost of Material*	*Cost of Repairs Cost of Workmanship*	*Aggregate Cost*
1 Arabian	Phineas Davis	July 1834	$33.58	$129.55	$163.23
2 George Washington	do	Oct. "	61.59	226.84	288.53
3 Thomas Jefferson	do	June 1835	21.51	422.81	444.32
4 James Madison	do	" "	——	——	——
5 James Monroe	do	" "	64.68	296.31	360.99
6 John Q. Adams	do	July "	225.42	997.21	1222.63
7 Andrew Jackson	do	Feb. 1836	83.81	292.19	376.00
8 John Hancock	Gillingham & Winans	" "	61.70	341.88	403.58
9 Phineas Davis	do	Aug. "	91.06	277.05	368.11
10 George Clinton	do	" "	49.56	263.69	313.25
11 Martin Van Buren	do	Nov. "	82.13	298.72	380.85
12 Benj. Franklin	do	Apr. 1837	151.67	459.60	611.27
13 William Patterson	do	June "	57.54	509.22	566.76
14 Isaac McKim	do	May 1838	27.92	173.71	201.23
15 Mazeppa	do	Oct. "	64.25	317.52	381.77
16 William Cooke	William Norris	Nov. "	48.25	164.13	212.38
17 Patapsco	do	July 1839	39.65	308.14	347.79
18 Monocacy	do	" "	38.76	275.64	314.40
19 Potomac	do	Aug. "	52.25	266.02	318.27
20 Atlas	Eastwick & Harrison	Sep. "	77.54	338.99	416.53
21 Pegasus	William Norris	Nov. "	65.40	287.12	352.52
22 Vesta	do	" "	74.57	329.74	404.33
23 Vuican	Eastwick & Harrison	Jan. 1840	56.29	423.51	479.80
24 Jupiter	do	Feb. 1840	53.69	238.75	292.44
Contingencies & Superintendance					2888.17
Totals					$12109.15
					Washington
1 Lafayette	William Norris	Fall of 1837	44.50	393.60	438.10
2 Phillip E. Thomas	do	May 1838	47.37	495.14	542.54
3 Joseph W. Patterson	do	" "	127.41	890.69	1018.10
4 Arrow	New Castle Mfg. Co.	Mar. 1840	162.58	778.73	941.31
Contingencies & Superintendance					997.34
Totals					$3937.39

the several locomotive engines owned by the Balto. & Ohio Rail Road Company during which the several Engines commenced running —

Fuel		*Number*	
Coal	*Wood*	*of Miles*	*Remarks*
Tons	*Cords*	*Run*	
211½	——	10,064	Tonnage Engine. Rebuilt and placed upon the road June 1840.
34½	——	1,976	do do Old—Required rebuilding.
111½	——	5,720	do do Old—(During this period has been put in good (order since which she has been destroyed by (fire now being rebuilt.
——	——	——	do do Old—Requires rebuilding.
197¾	——	8,828	do do Old—In good running order.
——	——	——	do do Under process of rebuilding—since completed and performed well.
135¾	——	7,212	do do Old—In tolerable good order.
133½	——	6,946	do do do do do do
111½	——	4,672	do do do do do do
223¾	——	10,468	Mail engine to Frederick—old in good order.
203½	——	10,094	do do do do do do —damaged by fire March 1st—being rebuilt.
98	——	4,176	Tonnage Engine. Old—during this period much improved.
143½	——	6,188	do do do do do do do do
60½	——	3,076	do do Old—in tolerable good order.
173¼	——	8,326	do do Old—in good order.
——	143	5,416	do do do do do
——	277¼	10,622	do do do do do
——	168¾	6,613	do do do do do
——	259¼	9,858	do do do do do
——	362¾	9,520	do do do do do
——	345¾	12,960	Passenger Engine to Harpers Ferry—in good order.
——	352¼	13,280	do do do do do do
——	307	8,000	Tonnage Engine do do do do
——	244¼	6,424	do do do do do do
——	——		
1838¾	2460¼	170,437	
Branch			
——	255½	10,400	Tonnage Engine—in good order.
——	220	9,296	do do do do
——	223¾	9,400	Passenger Engine—(New frame, crossheads & several other improve- (ments made during the period.
——	260	10,160	do do —Machine badly proportioned requiring constant repairs.
——	959¼	39,296	

The Development of the American Railway Passenger Car

By E. G. YOUNG

Written for the Bulletin of the Railway and Locomotive Historical Society 1933

RAILWAY construction in the United States and in Europe got under way at approximately the same time, and from the beginning there was a considerable interchange of ideas among engineers in this country and abroad. All started from about the same point in passenger-car construction, and the European "carriage" developed along lines which could readily be foreseen and which may be easily followed. In America the story is radically different: within a six—or seven—year period after the hauling of the first passenger trains, a type of car had come into use that was typical, and different from anything produced in Europe for nearly three generations. The box-on-wheels of the Stockton and Darlington and the Baltimore and Ohio, on this side of the water had become a house on wheels* forty feet long, with two four-wheeled swivel trucks, transverse reversible seats, center aisle, end doors, "porches" over the couplers: all these details were embodied in cars being built as rapidly as railway shops and private builders could turn them out, to the practical exclusion of all other types. There is surprisingly little information to be found as to the way in which the change came about—it is almost "veiled by a conspiracy of silence", but the scant information concerning the first decade is ample compared with the lack of information covering the following period—1840 to 1860 or 1865. The first portion of these notes will be devoted to an examination of available material relative to the improvement in car design in the direction of what may justifiably be called the "American type" car, as shown on the various roads opened for service in the earliest period of railway history.**

From 1832 on, scarcely a month passed without a railway celebration, marking the opening of a new line or extension. The periodical literature of the day was so engrossed with these "openings" that minor events, such as the improvement of passenger cars on older lines, received scant notice. Such notices as there were, commonly read thus: "the beautiful and elegant new cars built by Messrs. A. & B. for the C. & D. Railroad were inspected yesterday. We recommend them to our readers as the acme of comfort". It would seem that locomotive improvements were of great general interest; the changes in "burthen cars" were of some importance, but the "carriages" were merely a necessary nuisance of which the less said, the better. Actual material survivals of the period are limited in the extreme; a complete chain of car history does not

* So styled by an admiring spectator in 1835, writing to the "Rail-road Journal".

** A bibliography with notes appears at the end of this paper. Each source will be mentioned by full title where first referred to.

exist, as it does in the case of the locomotive. There are two clear reasons for this; locomotives are likely to survive fires in recognizable condition, while wooden car-bodies are not; antiquated locomotives have been recognized for over fifty years as valuable museum pieces, but out-of-date car bodies made good shanties* or chicken-coops. Car-bodies, also, are much more susceptible of progressive rebuilding, in the course of which all vestiges of 1835-1840 design would be lost, after once a moderately long body had been attained.

There was exhibited at the Chicago Exhibition of Railway Appliances in 1883 an original car of 1840, built by Harlan and Hollingsworth, of Wilmington. The body of the car was 36 feet long, 8 feet 4 inches wide and 6 feet 4 inches high inside. It had a center aisle with reversible transverse seats, two candle lamps, a single stove, no toilets, lavatories or water coolers; fixed window sashes with movable panels between, four-wheel trucks with rubber block springs and inside journals. The car was generally typical of its period, but certainly not the first of its type**. M. N. Forney, in "Railways of America" illustrates such a car (with outside journals however), dating it 1834; his authority is usually beyond question, but it is probable that the date should be two or three years later, judging by the railway reports of the time.*** From these cars there is a gap in dependable illustration to the C. & A. coaches "modernized" by Mr. Pullman in 1858—and very little difference appears over the twenty-year gap, which probably explains the gap!

In any historical study the Baltimore and Ohio railroad deserves first place chronologically. From various sources the following items of early passenger equipment are obtained.****

(a) Cars which may be called "primitive": these include the sailing car, and the open-platform cars shown in the earliest prints, such as that of the race between the horse-car and the "Tom Thumb"—Peter Cooper's diminutive locomotive. The latter cars had four wheels running loose on the axles, with railings, canopies, and seats—they were

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*The cars of the De Witt Clinton train of 1831 still exist, and are on exhibit at the Grand Central Station, in New York. The cars of the John Bull train (1836), frequently exhibited, are replicas, except one car body, which was rescued after many years service as a chicken-coop. There is an original Boston & Providence car of 1836 preserved at Purdue University.

**The present whereabouts of this car is unknown to the writer. It would certainly have been a part of the fine Pennsylvania exhibit at the Columbian Exposition ten years later, had it been in existence; it was probably destroyed in the intervening years. Gen. Porter, in "Railways of America" (page 233) illustrates a dilapidated car body of about the same date, though short enough to have been run on four wheels. This may have later been rescued from shanty service; these two with the John Bull car-body, the Purdue car, and the De Witt Clinton cars are the only known survivals.

***Each chapter of this book was contributed by a different authority. Mr. Forney's chapter was "American Locomotives and Cars", and the illustration mentioned is on page 140. The book was published in 1890.

****"The Story of the Baltimore and Ohio", Hungerford.
"Catalog of the Centenary Exhibition of the B. & O. R. R., 1927."
(This exhibition was known as the "Fair of the Iron Horse".)
"The Fair of the Iron Horse", a rotogravure souvenir.

doubtless "burthen cars" (to copy the earliest term for freight cars) arranged as a temporary expedient.

(b) The "mountain cabin on wheels" named the "Experiment", which was mechanically similar to (a), but had clapboarded sides, with window openings and a back door, and a permanent roof. The replica built for the "Fair" of 1927 had neither sash nor door, but had a line of benches on the two sides, which seated about fourteen people. This car was put into service on the first regular passenger run in May, 1830; it was later altered for service behind a locomotive.

(c) A passenger car for the B. & O. was built in Liverpool early in 1830. This car had seats for forty passengers; nothing else can be learned about it except that, later in the year, the car being much overloaded, a man was pushed off of the roof and a fatal accident resulted. The Liverpool construction and the number of seats confirm the "old-print" representation of this car as being of the type used on the Liverpool and Manchester line: the arrangement consisted of three carriage bodies placed end to end, without intercommunication, but with side door for each section. The car had four wheels with inside journals. It was first arranged for horse traction and later provided with couplers for locomotive service. This type of car-body seems to have been known as the "Winchester"; a car of this name later belonging to the company but carried on eight wheels may have been a reconstruction of the original Liverpool car.

(d) In August of 1830, there was exhibited in Monument Square (Baltimore) "a very elegant passenger coach just finished by Mr. Imlay"* which was the first of several of the same style, and to which the Imlay name attached itself from the first. These had a stage-coach body with twelve seats inside, a longitudinal seat on top for twelve additional passengers, and "drivers" seats at both ends of the car accomodating a few more. The upper-deck passengers were provided with a railing for safety and an awning for comfort. The bodies were slung, carriage style, on leather strap springs provided with tension adjustment.**

(e) During the period 1829-1831, Ross Winans, the mechanical genius of the B. & O., invented the outside journal and the swiveling truck. In 1831, the "Columbus", first passenger car to be mounted on eight wheels, was put into service, being carried on two of these trucks.*** No description of the arrangement of this car can be found, but from reports of excursions, etc., appearing in the current papers it must have had seats for fifty or more people. Being more or less experimental, it

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* The description is paraphrased from a quotation from the "Baltimore American" quoted by Hungerford. The firm of Stockton, Stokes, and Imlay was an important builder and operator of stage coaches, Mr. Imlay being the head of their construction division. The firm also built cars for some of the northern lines.

** Johnathan Knight, Chief Engineer, in a report to the directors of the Baltimore and Ohio dated September, 1831, said: 'It has been found absolutely necessary for the comfort of the passengers that the carriages be mounted on springs." (Quoted by Ringwalt in "Development of Transportation in America".)

***The fact that this car was actually in service is proved by a quotation from the "Baltimore American" of July 13, 1831, given by Hungerford.

was probably rebuilt and renamed within a year or two as may be seen from the next item.

(f) In the annual report of the Superintendent of Machinery, presented in October, 1834, the following statement appears: "The passenger cars hitherto used on this road generally resembled the usual type of stage coaches. Most of those built within the present year are materially different in appearance and arrangement. . . . They are not only more commodious but afford more security for the passengers." A list of new coaches built during the year is headed by the following names, all specified as mounted on eight wheels: the "Winchester", having seats for 36, the "Dromedary", and the "Comet", which had no less than "five stage bodies".* The Winchester was a three-body car; the Dromedary had an equalized truck with leaf springs. The lack of mention of the Columbus probably indicates that its trucks placed under the old Liverpool car made up the new "Winchester".

(g) The report of the Superintendent of Machinery for 1833 states that "it is proposed to construct some tenders for the passenger cars for the exclusive purpose of carrying baggage" and also some were to be built with space both for baggage and "way passengers". Old prints show that these "tenders" were actually put into use shortly afterward.**

(h) Many old cuts are extant which show passengers conveyed in their own carriages, these in turn being mounted and securely blocked on platform cars.*** This seems to have been a fairly common practice in England, but only one such case can be located in this country: the governor of Maryland rode thus on the railroad to Frederick, at the celebration of the opening of the line in 1831.

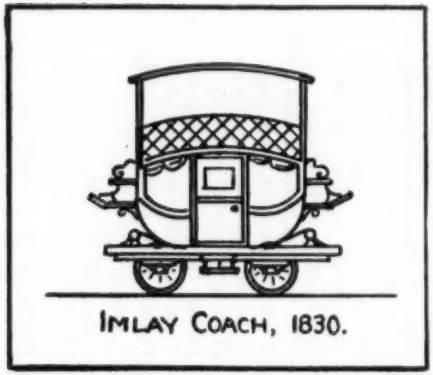
(i) Long bodies of the type used on the 1834 cars could not remain in use for any length of time without the question of inter-communication arising. The matter of providing a continuous central aisle or passage came before the directors between the times of the 1834 and 1835 reports. The main argument against the aisle was "the apprehension, which has been verified by the result that this would become one long spittoon." But the aisle system was adopted: Hungerford indeed implying that it had already been adopted in the original construction of the 1834 cars. He also states that the interiors of the cars were gaily curtained and decorated; the seats were reversible but small and low-backed; windows were small and often awkwardly located relative to the seats, and that there was no ventilation except through the windows. Mr. M. N. Forney,† in his chapter on "American Locomotives and Cars" shows a car of the fully developed "American type" dating it 1834,

*Report quoted by the Rail-road Journal.

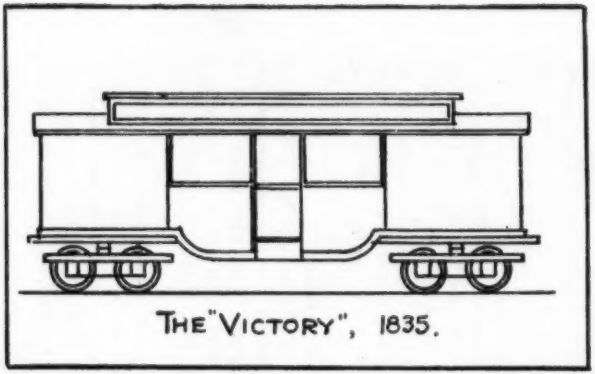
**"Way passengers"—those who journeyed less than the full distance between terminals—required special cars perhaps because the through cars remained locked from terminal to terminal.

***Such for example as the heading cut used continuously from 1833 to 1837 by the Rail-road Journal. The complete picture included a locomotive of the type of Baldwin's "Old Ironsides", a "burthen car" piled high with package freight, a four-wheel Winchester coach, and the carriages on the flat car.

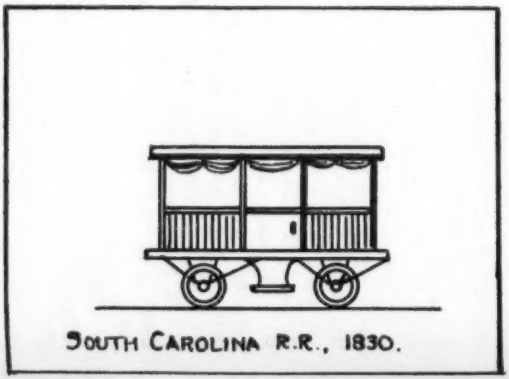
† In "Railways of America".



IMLAY COACH, 1830.



THE "VICTORY", 1835.



SOUTH CAROLINA R.R., 1830.

THE WINCHESTER TYPE, 1830-35.

hence agreeing with Hungerford, in which case the car-builders of the B. & O. put the aisles in first, and then had the famous "spittoon" argument with the directors later.* In contrast to the disparagements of these cars written from a twentieth century standpoint, the comment of a contemporary is of interest: "The cars, with their high, broad, seats, well-stuffed and inclined backs, are the most commodious we have ever traveled in, and we have been in a good many."**

The second railway in order of priority is the Charleston and Hamburg, later known as the South Carolina. This road first offered a premium for the best horsepower locomotive of the treadmill type and paid the prize to Mr. C. E. Detmold for the "Flying Dutchman.† Having a line of seats on both sides of the stall for the horse, this contrivance qualifies as a passenger car. But steam power was planned by the directors from the beginning, and, on January 15, 1831, after having made several trial runs during the previous weeks, the first locomotive of the line, the "Best Friend", took a train of passenger-cars over the road, and on March 5, the second locomotive (the "West Point") took a similar excursion. Prints§ of the two trains are familiar to everyone interested in railway history, as they have been reproduced numberless times; these seem to have come originally from Brown's book and were probably from drawings made by him. The cars show box-bodies with longitudinal seats, a wooden top, reefed side-curtains, center door, wooden pedestals and four wheels running loose on the axles. It would be in harmony with all of Brown's work for these pictures to be very faithful to detail, but it is to be noted that he makes no claim to having seen these cars in their early state, and he may not have seen them at all, but based his drawings on sketches or descriptions sent him by employees of the road many years later, in connection with the correspondence he carried on to establish dates.***

What progress was made by this company during the next few years is difficult to trace. There are distinct references in the "Rail-road Journal" to "Baltimore-built" cars obtained and used by the road. In his report to the directors of the line in July, 1832, Horatio Allen, Chief Engineer, indicated that in some cases the same cars were used both for freight and for passenger service. In the report of a year later, it is stated that the company had on its line three "improved passenger cars", and that four more were ready for mounting. There were many com-

* This is fully recorded by W. H. Brown in "History of the First Locomotives in America". It is also recorded by Hungerford, the latter source quite evidently paraphrased from the original report.

** Quoted by Hungerford from a letter appearing in a newspaper of the time. Letters in the Rail-road Journal of the period refer to the B. & O. cars as "a line of houses on wheels", "long cars capable of carrying 100 passengers" (an obvious exaggeration), etc.

† Brown, "History", page 135.

§ These prints are somewhat amusing when compared. It will be seen that the passenger cars and their occupants are identical: in making the print of the "West Point Train" the passenger cars of the Best Friend were quite appropriately uncoupled and switched from one engine (and one picture) to the other.

***"History", page 154.

plaints as to delays to repairs on account of the lack of material and the failure of contractors to deliver—obviously the wheels in this case were delayed—these would be on cars built by the railroad, rather than those from Baltimore, and it is a reasonable guess that it was these "improved" railway-built cars that Mr. Brown drew. As to the Baltimore-built cars, the same phrase is applied by the same writer to Winchester pattern cars built for the Philadelphia, Germantown and Norristown, but no other clue as to their form or arrangement is to be found. Imlay, the principal Baltimore builder, might with equal probability have supplied the single stage-body type with or without upper deck accommodations, at this time. The South Carolina line was in possession of eight-wheel cars with center-aisles sometime before 1838.* In 1839 there was made a most remarkable improvement, the "barrel-car"; in the report of the Chief Engineer for that year there was a full description**: The passenger car was 30 feet long, with a 2½ foot "portico" at either end. The body was built of staves, grooved and dovetailed together, and supported by six iron hoops"; it was 9 feet in diameter at the middle and 8 feet at the ends. "There are 20 (?) windows on each side, glazed, the sash passing up overhead". The report implies that only one such car had been built, but references in the Rail-road Journal later indicate that there may have been three or four in all. (It probably did not require many of this design to be enough.)

The Mohawk and Hudson Railroad was opened with a public excursion on August 9, 1831. The distinguished guests on that day rode in "regular coaches", the common herd in lumber wagons with cross seats hauled behind. According to Brown† the coaches had already been used singly on the road before the arrival of the locomotive, and were actually highway vehicles with railway wheels substituted—stage bodies without upper deck seats. Brown's famous silhouette cutting indicates that there were six seats inside each carriage and room for two more on drivers' seats at each end of each coach; the limitations of his material may have prevented a more complete showing of passengers. These cars are still in existence, and are on exhibition at the Grand Central Station. They had strap springs like the Imlay coaches of the B. & O., but were generally smaller in proportions.

The Camden and Amboy Railroad started steam passenger service on Nov. 12, 1831. The first passenger train consisted of the imported locomotive "John Bull", a tender built in the company shops, and two cars of the Winchester triple coach-body pattern.*** These had elaborately formed panels, arched windows and fine decoration; there were no seats on top, but a railed-in space was provided for baggage. The cars had four wheels in pedestals with rubber spring-blocks; entrance was from the side; no running board for inter-communication was pro-

* "Centennial History of the South Carolina Railroad", Derrick, page 129, also Rail-road Journal references.

** Quoted by Ringwalt.

† "History", page 170.

*** "The Pennsylvania R. R. Co. at the World's Columbian Exposition, Chicago, 1893." Pictures on 3rd unnumbered page after page 18, references on page 19.

vided. No record of other passenger equipment can be found until the year 1835-36, when the cars of the now-famous "John Bull train" were built. This train traveled under the power of the John Bull to Chicago in 1893, and was brought to Baltimore in 1927; the cars were built by Isaac Dripps in the company shops, but only the body of one car is original—this was rescued from service as a chicken-coop prior to 1893. These cars were 30 feet long, 8 feet 6 inches wide, and seated 48 people. They had center aisles, platforms over the couplers but no hood above the platform, eleven glazed windows on each side and glazed windows and doors in the ends. The windows were fixed, but panels between the side windows opened for ventilation. The cars rode on two four-wheel pedestal trucks with springs in the pedestals above the journal boxes, originally rubber blocks.* These cars were of the "American type" fully developed, but a little odd in appearance due to the heavy side trusses provided, and the lack of a hood over the platform.

The publication of the "Rail-road Journal", references in which have been already mentioned, was started by D. K. Minor with the beginning of 1832. This paper has existed continuously to the present time though under a number of different titles, and as the "Railway Mechanical Engineer" recently celebrated its centenary. The first number had a head-cut showing the "Novelty" locomotive, built by John Ericson for the "Rainhill Trials" of 1829, and a three-body four-wheel car, most nearly resembling those of the Camden and Amboy, though less ornate. According to a statement in the text this car seated 18 passengers. The use of cuts with advertising began in 1833, the first being a tree, in a seed offering; the Journal shared its columns generously with non-railway interests—literary notices, poetry, births and deaths, agricultural advice, etc. The first thumb-nail picture of a locomotive appeared in 1835, the first passenger car in 1836—these thumb-nails were never up-to-date; for example, cuts of four-wheel engines and four-wheel cars were still in use in 1852. Locomotive pictures begin to appear in the text in 1835, but there were no passenger car pictures before the fifties. Advertising pictures actually representing a product appear by 1840, and include both locomotives and cars.

The Philadelphia, Germantown and Norristown Railroad was open in June 1832, and three of the passenger-cars for this road were exhibited at the company's car-house in April.** These were from the Imlay factory at Baltimore and accommodated 15 or 16 passengers each. The elegance of their finish and proportions is described in the Rail-road Journal at considerable length, but practically nothing is said as to their actual construction or arrangement. Their seating capacity would indicate fairly large bodies, but no upper deck accommodations. Ringwalt accepts the tradition that the cars had "stage-coach bodies". There were fourteen of these cars, and this equipment was doubtless adequate until 1835 when another order of coaches was delivered. These cars had

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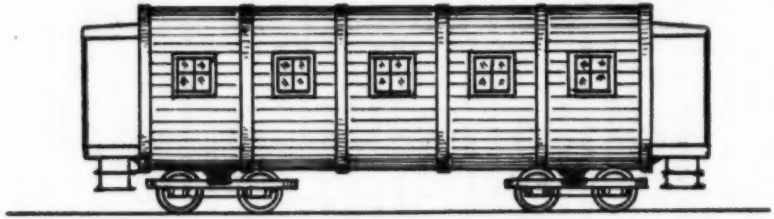
*"Penna. R. R. at Chicago 1893", pictures on unnumbered page, 12th leaf in book, and notes on facing page which should be numbered "6". Also pictures in "Centenary Catalog of B. & O.", page opposite 210, and page 204.

**All information from current comment in the Rail-road Journal.



THE BARREL CAR, 1839.

THE "AMERICAN TYPE", 1840.

"double (? triple probably) bodies on four-wheel trucks". An early employee of the company describes these cars thus: ". . . models of elegance and comfort . . . . they had a bar at one end and a ladies saloon at the other" . . . which clearly marks the beginning of a new kind of accommodation.

The Schenectady and Saratoga line was opened in 1832, and so great was the pressure for passenger transportation that it was almost impossible to haul freight offered. The coaches were "fitted in a new and elegant manner"* and from incidental allusions, some of these were evidently of the regular stage-body pattern as used by the neighboring Mohawk and Hudson, which were shortly followed by other of the Winchester three-body pattern. For "so similar to stage-coaches were each of the three compartments in these early cars, that their seating capacity could not have exceeded twenty-five persons".**

The Philadelphia and Columbia Railroad was opened in 1834. The passenger-cars first used on this line were of a modified Winchester type; they were composed of the usual three-body sections, but carriage-builders' curves were suppressed in favor of utilitarian straight lines. The tops of the cars had the usual drivers' seats from which the brake levers were worked, and running boards were provided for the conductors on both sides of the car. The bodies were mounted on four wheels and two notable departures are apparent from the pictures available: the use of flat springs over the axles, and the complete closing in of the sides, the old side curtains being replaced by permanent siding with glazed windows.***

In 1835, a "large and elegant eight-wheeled car" was built in Lancaster, by a builder of carriages named Baker; the local press praised the car and regretted that it was sent to Philadelphia for disposal rather than placed on the local railroad†. In this same year, a car fitting this description was placed in service on the line within the city of Philadelphia leading from the business section to the Schuylkill ferries, where connection was made with the Columbia road; this latter car was called the "Victory".§ A model of the car shows that the lines of the body were influenced by stage-coach designs; the central portion is about "three bodies" in length but it has only a single side-entrance, and the ends of the car contained sections without windows. Were these for baggage storage? were they "bars" and "saloons"? The top of the car is also peculiar. There is a structure which may be a long seat, but if so, it is not protected by railing or awning, and no means of access is apparent; the form suggests rather that it is a precursor of the modern clerestory—the raised central portion of the roof providing side openings for ventilation.

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*Same source.

**"History of the Delaware and Hudson Company 1823-1923", page 88.

***These cars have been very frequently pictured. In 1912 the Pennsylvania R. R. made replicas of them for an anniversary celebration.

† Various items from the Rail-road Journal.

§ Exhibited in the Pennsylvania display at Chicago, 1893. Pennsylvania souvenir publication, second unnumbered page after page 18, also reference on page 19.

A pamphlet published by the Pennsylvania some years since* says that the "first car with elevated roof" was built in Philadelphia in 1836 by C. Allison, and that this car was soon changed from four to eight wheels, the trucks being built under Imlay's patent of 1836,—"probably the first car to which a 'bogie' was applied"—the latter statement being manifestly incorrect. There is also a reference in the Rail-road Journal: "a large eight-wheeled car which is greatly admired" was in service on the Philadelphia and Lancaster Railroad. Does "elevated roof" mean clerestory? did Allison merely repair and put bogies under Baker's car? were they different cars entirely? No answer can be made to any of these questions, but in any case the answer is less important than the contribution this design or these designs made to passenger-car development.

The Boston and Providence line was opened in 1835. There is preserved at Purdue University one of the original passenger coaches of this line: a double-deck stage-body carried on leather strap springs and mounted on four large wheels, similar in all respects to the Imlay cars of the Baltimore and Ohio.

The first railway advertisement carried by the Rail-road Journal informed the New York public that there was a "railroad in actual operation at their very door"—the Newcastle and Frenchtown line in New Jersey. On June 1, 1833 a handbill** informed the public that a train of cars propelled by a locomotive engine left Newcastle for Frenchtown every morning, and pictures the train. The cut shows two cars of the Imlay pattern, both with upper deck seats, and nearly alike except for the absence of a top canopy on one car. The circumstantial nature of the evidence would show that the pictures were made from the actual equipment—the Pennsylvania obviously believed them to the extent of reproducing the train in miniature in another model.***

There were many other lines opened during these years for which the records are not adequate enough to draw conclusions. The nine which have been presented represent the beginnings of the Pennsylvania, New York Central, Baltimore and Ohio, Southern, Reading, and New Haven railway systems. Of the nine, two started by carrying passengers in freight-trucks disguised with seats and canopies; two started with Imlay double-deckers; one with railway wheels placed on regular turnpike coaches, and the other four with Winchester cars of varying degrees of "elegance and comfort". The "American type" car was adopted by the B. & O. in 1835 (possibly 1834), by the Camden and Amboy in 1836, by the Philadelphia and Columbia in the same year, by the South Carolina before 1838; the Philadelphia, Wilmington and Baltimore was

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*"Representations of Old Transportation Prepared for the Fiftieth Anniversary of the Loyal War Governor's Conference" Pennsylvania Railroad, 1912.

**"Pennsylvania Railroad at Chicago, 1893"; the handbill is reproduced on an unnumbered page and referred to on page 88; the models are shown on unnumbered page opposite page 22.

***This model shows the signalling system of the Newcastle and Frenchtown line.

so equipped before 1837*; the railways of New York and New England were a little slower, but had fallen into line before 1840 as proved by many references in the news columns and car-builders advertising. For example, in June 1842, the Rail-road Journal carried a description of cars built by Davenport and Bridges of Cambridgeport, Massachusetts, for two roads, one in New York and one in Massachusetts; fifty passengers can be seated in upholstered, double, reversible-back seats; the floor was covered with matting; in some of the cars special compartments for ladies were provided; the trucks had "springs large enough to remove all of the swinging motion and most of the jolts". "The lamp is so arranged as to give adequate light inside and outside"—note the singular, but it is probable that one was provided at each end of the car, mounted in an opening in the wall. The advertising of the builders shows that the space of one seat was used for a "saloon"—so labeled—but neither water supply nor heating arrangement of any kind is apparent in the drawings.

An interesting side-light on the progress of design in railway equipment is found in the small cuts used on advertising announcements, hand-bills, etc., and later in the columns of railway magazines. Those in the Rail-road Journal have been referred to; these were not likely to be in advance of their times, though some of the pictures were somewhat imaginative and some were "borrowed", representing more or less correctly the equipment of other companies. The Pennsylvania exhibited a collection of hand-bills at Chicago of great interest**, and these are reproduced in their souvenir publication. Among other representations an eight-wheeled car with several windows open appears on a dodger of the "Pioneer Fast Line" from Philadelphia to Pittsburgh dated April, 1837 and the identical cut is found used by the similar "Perseverance" line in March, 1838. The same cut was probably in the hands of several firms of Philadelphia printers.

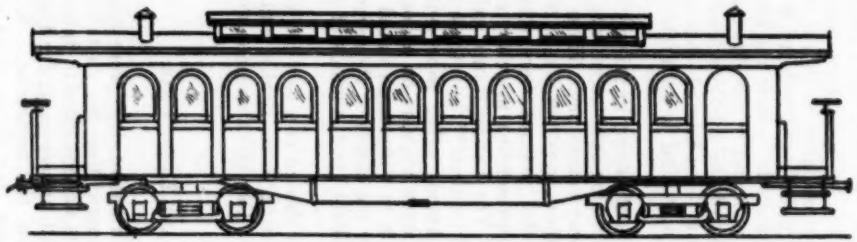
The progress of following years in car design can best be followed by treating separately the subjects of Running Gear, Brakes and Draft Gear; Car Body Design and Construction; Car Arrangement and Fittings; Heating, Lighting and Ventilation.

The Running Gear, Brakes, and Draft Gear

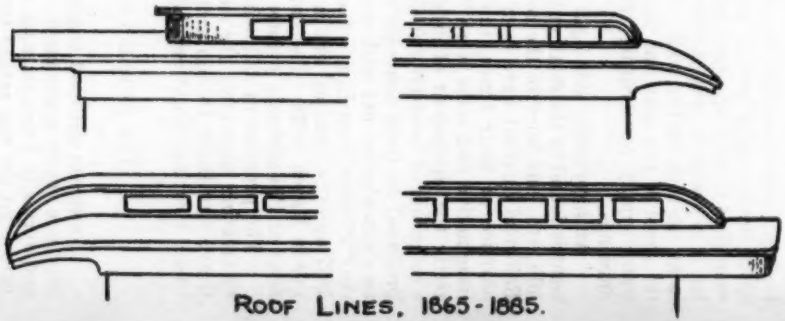
American railroad engineers of the formative days were spared at least one costly experiment; it may be assumed that the visits of Allen and Jervis to England made trials of double flanges, outside flanges, and flanges on the rail rather than the wheel all unnecessary, for the inside flange marked American construction from the beginning. With the first notices of railway wheels it is evident that three types were in general use in the early thirties: wheels essentially the same as highway wagon wheels, with flange plates bolted to the inside of the rims; wheels

* Repeated references to the number of passengers on excursion trains, etc., prove this; also, a car of this style was available for rebuilding into a sleeper in 1838.

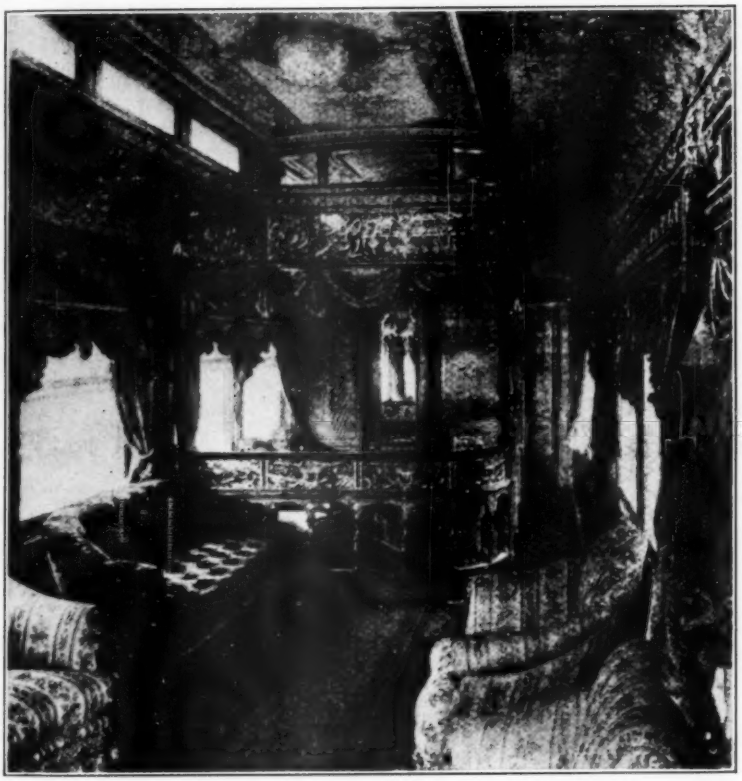
**"Pennsylvania at Chicago, 1893": many of these bills are reproduced in the unnumbered pages at the back of the book.



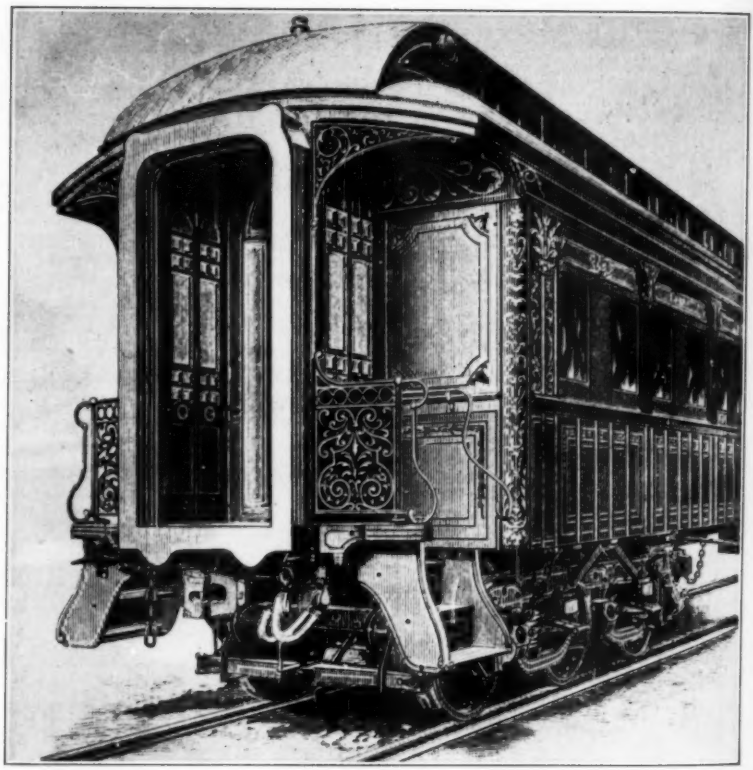
A COACH OF THE SIXTIES.



ROOF LINES, 1865-1885.



"The Height of Elegance."—1893.



The Narrow Vestibule.

made of solid castings, and others in which a rim and hub were cast around wrought iron spokes. Either of the latter types might have the tread and flange as a part of the rim, or a tire made separately and shrunk on. Winans developed the chilled tread; he was using it on the B. & O. in 1831, and in 1845 advertised that he had been making chilled wheels commercially for twelve years. For several years he used a modification of the usual method, casting his rim around an iron hoop as well as chilling the surface of the tire. In 1833 M. W. Baldwin took out a patent for a rim to be cast around bar-spokes, the material to be "gun-metal" with an infusion of brass which might be varied to control the hardness and the coefficient of adhesion. Patents were issued the same day in 1838 to two pairs of inventors, (Bonney and Bush, Truscott and Wolf) for double plate cast iron wheels. James Wright invented the conical tread and this was put into use on the B. & O. in 1830 or 1831; in 1834 J. Elgar secured a patent for a wheel with the tread cylindrical next the flange and coned on the outer edge, thus attaining the modern form of contour. An important chapter in car-wheel history is the "paper wheel": R. N. Allen made the first of these in 1869, placing a filling of compressed paper discs in the space between the hub and the rim. The practice became extremely popular and remained so, the Allen wheel having many imitators, up to about 1890, after which the paper wheel is no longer heard of.

The first railway car wheels ran loose on the axle but this practice seems to have disappeared by 1835, in favor of wheels shrunk pressed or keyed to the axle. All engineers were convinced of the necessity of making the journal as small as possible to reduce friction. Outside journals could be given a smaller diameter than inside journals; the outside arrangement had been invented by Winans (patented in 1831) and became universal by 1845. The earliest outside journals were about 2 inches in diameter by 3 inches long; in forty years the size gradually increased to 3 by 5¾ inches, which was the commonest size for passenger cars, with exceptional journals 3¼ by 7 inches. The Master Car Builders Association's first standard was a 3¾ by 7-inch journal with corresponding axle box, adopted in 1874.

Journal boxes were at first plain, two-piece iron castings with end lubrication, but before 1831, Col. Long (an army engineer officer who made many contributions to the solution of technical problems) had invented the oil-reservoir box, in which a cork floating on the oil rubbed against the lower side of the journal. Winan's and Howard's "friction wheels"—an arrangement similar to the bearings of our grandfathers' grindstones—and invented before 1830, were a fore-gleam of the roller bearing of the present day, but played no important part in the tale of their own times. It was soon discovered that a knitted muffler, sock or mitten did far better service in the oil box than Col. Long's floating cork, and wool-waste packing was advertised before 1840. From references in the Rail-road Journal, soft metal "brasses" seem to have appeared in the early fifties, and the journal box had thus acquired all of the elements which the Car Builders began to standardize in 1870, a general arrangement never questioned until the advent of the roller bearing in 1923.

The first journal-boxes were bolted to the sills of the cars or the frames of the swivel trucks, but in construction as early as 1831* the boxes were held between the jaws of a pedestal which allowed some degree of spring-controlled vertical movement. The earliest springs were blocks of rubber, or iron coil springs or volutes placed between the pedestal jaws. By 1834 the saddle construction was invented, and the springs placed above the frame; this allowed the use of an elliptic spring, or of an equalizer over the box with a spring connection to the frame. In 1834 in Winans' "Dromedary", the two boxes on each side of the truck were equalized together, and Winans continued to use this construction** in all later cars. The arch-bar truck gradually evolved: its form can be seen in certain wooden-frame car trucks built as early as 1840, though in these the bolster had only such lateral play as the sidewise spring of rubber blocks would permit. Locomotive tenders of 1850-55 show fully developed arch-bar trucks, but this type was never as popular as the equalized truck for passenger cars. The six-wheel passenger-car truck is a Pullman invention. The "Pioneer" at first had four-wheel trucks, but these gave way to two six-wheel trucks soon after it was put into service. The use of steel in car trucks began with reinforcing or "flitch-plates" first mentioned about 1882. In 1890, the Fox pressed-steel truck was introduced; the pedestals were integral with the frame, and the form in general closely approximated that of the modern all-steel truck with cast frame. The only wood in the Fox truck was the "spring-plank", which literally was a plank. The all-steel six-wheel truck did not arrive until 1906.

The earliest car-couplings were chain-links and hooks but evolution was rapid; by 1840 the "bull-nose" link-and-pin coupling was in use. On some roads these were fastened to continuous draft rods, but in most cases the attachment was to the floor timbers. The resulting out-of-line pull and buff was responsible for numberless cases of over-riding and telescoping of cars, and the remedy was not found until the invention of the "Miller" platform about 1869. This consisted of a combination of a "tension-compression" type of coupling where center spring-buffers, on a level with main sills of the car, were brought against each other, and held in contact by springing the couplers together. It was a great improvement in safety and comfort for the passenger, but making the coupling was a hazardous proceeding for the switchman. Coupling accidents became a "holocaust", "nightmare", "shambles","outrage".*** All manner of automatic couplers, which made the insertion of the pin unnecessary, were invented. One of the earliest, and, as it proved the most important, the "Janney" type, was demonstrated at a meeting of the Franklin Institute in December, 1878. In September, 1885, the

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* The original drawings of the tender of the DeWitt Clinton locomotive (1831) show this arrangement.

**Hungerford, "Story of the B. & O.", page 145.

***Many more expressions of the same kind can be found in the columns of the old Railroad Gazette, edited by M. N. Forney. He was a crusader who turned his fire on one evil after another in similar fashion, including stoves, ventilation, car seats, etc.

Master Car Builders' Association accepted as a result of extensive tests, twelve types of automatic couplers, including the Janney; by later rulings, it was virtually required that all other couplers, to remain acceptable, must couple automatically with the Janney. Legislation relative to couplers began in Congress in 1890, the final outcome being that automatic couplers of the Car Builders' Association type were obligatory on all equipment before the end of 1898. The first coupler with a spring connection to the car body was patented by Alverson in 1838. By 1875 cars had draft springs so arranged that the same spring served for both tension and compression, but there is no information to show when this arrangement was invented. The first "friction draft gear" (then called a "friction buffer") was marketed by the Westinghouse Company in 1890.

The earliest passenger cars were fitted with wooden brake-blocks which are pushed against the rims of the wheels by direct acting levers. About 1840 the arrangement whereby the brake was applied by wrapping a length of chain around the spindle of a brake wheel was invented, and generally applied to the lengthened cars. At the "brakes on" whistle from the engine, the "brakesmen" hurried from car to car setting a sufficient number of handbrakes to hold the weight of the train. The speed and weight of trains increased in forty or fifty years to a degree out of all proportion to the facility with which the momentum could be controlled. In a few cases (e.g., the Hudson River Railroad) emergency braking arrangements, such as chain drags, were used, but "appliances reserved for emergencies . . . . are found to be of little value when the emergency occurs".* The Westinghouse air brake—the original "straight air" arrangement—was patented in 1869; it had a hard fight for favor, even though abetted by the Pennsylvania Railroad and the Pullman Company. The automatic brake, with the triple-valve as its nerve-center, was invented in 1872, removing most of the objections to the older form. For eighteen years thereafter the history of trial and experiment, rejection and adoption is the story of common sense versus false economy and even less creditable motives. By 1890 the automatic brake was in use on the passenger cars of most of the important railways of the country; brake and coupler legislation came at the same time, and resulted in complete adoption of the system before the end of 1898 being compulsory. The improvement was practically completed by the railways two years in advance of the final date. The general form of truck brake rigging in common use was adopted as standard by the Master Car Builders Association in 1888 and 1889. The first clasp brake arrangement found is that on the Fox truck of 1890, previously mentioned.

Car Body Design and Construction

The progress of the art of car-body building from the stage-coach structure to the "American Type" has already been noted, also the telescoping problem, and the development of the Miller platform and

*Statements both of fact and opinion from "Railroad Accidents", by C. F. Adams (1879), page 202.

buffer arrangement. One of the first improvements after the development of the long car body was Davis' patent for "through-braces"—long since called truss-rods; these permitted a desirable reduction in the weight of the main sills of the car. After this improvement, design seems to have stood still for nearly thirty years, cars of 1860-65 showing no measurable advance over those of 1835-40. The bodies were relatively weaker as a result of the weak platform construction and sills too light for the increased length and weight; windows were small and poorly located; roofs were perfectly flat or only slightly arched. Pullman applied the clerestory roof to his "Pioneer" and may have been its original inventor*. The construction became universal in the following ten years, and the experimenting with roof-lines which followed in the effort to obtain a construction which would be sightly as well as simple and strong is of great interest. Most of the results appear grotesque today. The trials finally ended with the adoption of two definite "skylines"— one for the Pennsylvania and another for everybody else. In 1887 the Pullman or Sessions narrow vestibule was brought out and became standard construction for all sleeping and parlor cars, and the desire for uniformity in appearance resulted in other cars to be run in the same trains with these being vestibuled. Before the end of the year an all-vestibule train was running on the Pennsylvania. In 1894 the Pullman and Wagner companies almost simultaneously adopted the wide vestibule, now universal; open platform cars rapidly disappeared from main-line service, and by 1910 the narrow vestibules, as well, were gone. Real attention to window construction began with the various companies engaged in building and operating sleeping and parlor cars (as was the Pullman Company); bay windows, beveled plate glass, double windows, special locations relative to the seats—all these came in for consideration, along with large glass areas and suitable means for opening and closing. Steel in body framing is first seen in improved Pullman sleepers of 1890, in conjunction with the same builder "anti-telescoping end frames", in which heavy angles took the place of wooden framing. From many references, it is clear that steel reinforcing plates originated as wreck repairs for weakened sills, as far back as 1875, and they were first used in new construction, along with steel transoms and draft attachments, in 1888 or 1889. Steel members and bracing played an increasing part in frame construction, until in 1903 there were built for the Wabash cars for the exposition "shuttle train" service with complete steel underframes. In 1904 all-steel cars of light construction were built for the New York subways and the Long Island electrification. Additional subway and electric cars were ordered the following year, and in 1906 the car builders were furnishing sample all-steel coaches to many railways. Early in 1907 the Pullman Company built the all-steel sleeper "Carnegie" for the exposition at Jamestown, and the era of the "battleship car" had fully arrived.

* See notes on the "Victory", page 14.

Passenger-Car Arrangement and Fittings

The internal arrangements of the 1840 car have already been noted. Twelve to twenty transverse, double, reversible-back seats in the center of the car; longer seats or "sofas" in the empty corners, and a single toilet compartment made up the furnishings. As in other phases of construction, this stage having been reached, progress lagged for twenty-five or thirty years: improvement during the 1840-1865 period may be summed up by saying that the predilection of the American traveler for ice-water had been taken into account, and that there were two toilet compartments, which in certain of the most elegant cars, had been provided with elegant marble-topped wash stands as well. The *Baltimore Chronicle* of October 31, 1838 contained a notice* to the effect that cars for the Philadelphia service, with twenty-four berths each (they were merely shelves or bunks) were ready to be put into operation. "These are of beautiful construction. . . . Nothing now seems wanting to make railway traveling perfect except dining cars". But dining cars were strangely slow in coming: not until Pullman's first "hotel-car" of 1867, with both sleeping and dining accommodations, was there a serious attempt in this direction. In general, improvements in cars for general public service originated in private and "de luxe" cars. The coach improvements up to the present time are too familiar to require discussion. They began with Forney's campaign for comfortable seats—he marketed his own design in 1886, with real improvement in height, slant and form of cushions, method of reversing, etc. The reclining chair was invented about 1883, and apparently first used by the Michigan Central, and these two forms of seats satisfied the public until the coming of the "bucket-seat", first put into a coach in 1926. Toilets and wash-rooms have been enlarged, with pressure water systems and sanitary coolers. The old wooden floor has given place to easier-cleaned composition flooring; curtains, window sash, chair-backs, and foot rests really work—they have even come to be almost fool-proof.

The first parlor car was built in 1846 for the Eastern Railroad (of Massachusetts). It had individual swivel chairs, silk curtains, and was in every other respect (including red plush carpet and silver-plated spittoons) utterly elegant. The construction of private cars has consistently furnished the inspiration for the other fittings which have gone into parlor, club, and observation cars—bathtubs, barbers, libraries, and the rest—these features began to be recognized for their advertising possibilities about 1900, and the only recent addition to the list is radio equipment.

After the first sleepers, with their three-deck bunks and piles of bedding at the end of the car, there were no important changes until Pullman history began with the rebuilding of two Chicago and Alton coaches at Bloomington in 1858. These led to the construction of the "Pioneer" in the same shops in 1865; this car had all the essentials of the modern sleeper, and needless to say, a superlative degree of elegance

* Quoted by Ringwalt. These were not the very first sleepers, however; they were probably copied from cars put into service in Pennsylvania some months earlier.

never before obtained. There was continual progress in the improvement of details (and elegance); Pullman took up every idea which offered improved convenience to the passenger as well as safety of operation. The rivalry of other firms of car builders was an incentive—Wagner, Mann, Woodruff, Harris, and others, but Pullman had a long start, and the other concerns either fell out of the race or were absorbed by the older company. They vied with each other in decoration and ingenuity of arrangement; the resources of every architectural age and decorative period were appropriated and combined into marvels of beauty in the tastes of the day—hangings, carpets, upholstery, carving, marquetry—the elegance almost crowded the passengers out. With the turn of the century, came the beginning of new ideas in decoration; the simplification was evident, though the reaction was not complete or immediate. The first thing eliminated was hangings—redundant curtains, window drapes, etc.; next, roof and ceiling lines were simplified, grillages and extra columns disappeared, wood-carving and inlay nearly disappeared, the number of mirrors was reduced—but good beds, comfortable seats, sanitation and service remained. Alas, poor elegance!

The first meal service was provided in Pullman-built "hotel cars" in 1867, but these combined diners and sleepers were never very popular, and in 1868 the first regular diner, the "Delmonico", built by Pullman for the Chicago and Alton, was put into service.* The Pullman company, has in general relinquished diner service to the railways.

Heating, Lighting, and Ventilation

The car of 1840, if provided with any heating arrangements whatever (and many cars even in the north were not so provided), had a single wood or coal stove at the end or in some cases in the middle of the car. It was lighted by one or two candle lamps or by swinging oil lanterns. Ventilation was provided by open stacks in the roof and such adjustments as the passenger might be able to make in his window sash. By 1870 the lengthened cars were provided with stoves at both ends, kerosene lamps in brackets specially designed for car service and hung from the ceiling; the clerestory roof was being rapidly adopted. Already there was developing a strong feeling with regard to the danger from stoves, and several otherwise slight accidents had been magnified into major disasters as a result of fires from overturned stoves. Some people were talking about "fetid atmosphere", and "letters to the editor" were wondering why the traveler could not have enough light so that he could read. Mr. Forney was bringing up his guns for the twenty-five year bombardment. When Mr. Pullman built the "Pioneer" he installed the "Westlake patent heating and ventilating apparatus, so that a constant current of pure and pleasant air is kept in circulation through the car",** and he adopted or devised the clerestory for summer ventilation. (In the Westlake system, the stove was in a closed compartment, through which air was forced by the movement of the car.) By 1876 he had adopted a system of hot water heating which permitted the stoves to be confined in tight, fireproof compartments, a long step

* "One Hundred Years of American Railroading", Starr, pages 284-87.
** Quoted by Starr from Illinois State Register, May 26, 1865.

toward safety.* In 1878 the Baker heating system was introduced. Under this system, steam under considerable pressure was supplied by the locomotive, and circulated through a small pipe with a heavy sand jacket. A stove in the car was provided to keep a supply of hot water in this pipe when the car was not coupled to a locomotive. In the following ten years, great progress was made in steam and hot-water heating; in 1888 a Master Car Builders' committee reported 18 different systems in successful use, practically all using steam from the locomotive, supplemented by hot water; some of these entirely eliminated car stoves.** Steam heat was required by law in New York in 1889 and other eastern states followed with similar legislation. The situation was such that congressional action was not thought necessary, though the question was presented in the early nineties with other safety matters. Western and southern roads lagged, however, and there were some bad car-stove fires as late as 1900.

The oil lamp was improved considerably before its final disappearance, but its doom was sealed from the first trials of the Pintsch gas lighting system which took place in 1881. In 1883 there were nearly 200 cars equipped on eastern roads. The Foster gas light and the Frost system, using acetylene, were worked out between 1880 and 1885, but the Pullman Company and most roads adopted the Pintsch system. Experiment with electric lighting began in 1884, and before 1890 a successful lighting system was in use, in which power was taken from a generator in the baggage car. The Gould axle-light system was marketed in 1897 and the use of the axle-driven generator spread rapidly after 1898.

Pullman equipped his "Pioneer" with a plain double funnel induction ventilator to take the place of the old style roof stacks which merely permitted the escape of a certain amount of the warm air which rose to the ceiling of the car. The induction ventilator has been greatly improved and since 1870 has been placed on the rounded portion of the roof to reduce the height.

"Air-conditioning", as the combination of humidification and ventilation has come to be known appeared experimentally in passenger cars in 1926 and promises to become regular equipment in future cars.

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These notes are intended to be historical, not prophetic, but the place of lighter passenger equipment in the railway thinking of today cannot be ignored. If the passenger service is to be ever again on a paying basis, the reduction of dead weight per passenger is an inviting means of saving in costs. Recent experiments with rubber-tired rail cars have indicated that weight can be reduced to 500 lbs. per passenger, including the weight of the motive power, in place of ten tons, a not uncommon figure at present. It may be doubted whether modern standards of safety make the heavy car necessary, and the traveling public is obviously unwilling to pay for heavy-car comfort. Perhaps our battle-ships-on-wheels are headed for the scrap heap.

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* Pullman advertising.

** As early as 1848, attempts had been made to heat the train with hot air from the engine as a means of eliminating stoves. Air was funneled through the firebox in a closed tube and led back to the car through flexible connections.

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The names of the writers indicate the degree of authority. The first two were editors of railway magazines, and Gen. Porter was Vice President of the Pullman Company. The lack of mention of the era 1840-65 is particularly noticeable in this book.

CHRISTMAS CARDS

LAST year many of our members were glad of the opportunity to purchase the Christmas cards as outlined in our Bulletins 28 and 29. It is with considerable regret that we learn that the Majorie Knapp Book Shop will not handle these cards this year. However, for those of our members who desire these cards, we suggest they get in touch with the Book Shop for Boys and Girls, 270 Boylston Street, Boston, Massachusetts. The subjects handled will be the same as last year—"De Witt Clinton" and train, 5c, a Blenkinsop style of locomotive and coach, 10c, "Snowbound" and a 4-4-0 Norris locomotive and train in the 10c and 15c size and "The Great West", "Through to the Pacific" and "The Route to California", all Currier & Ives reproductions in the 15c size only. These cards are beautifully colored and should be of interest to our members. Your order should be placed prior to December 1st.

Brief Sojourns

By Ann Arbor

ANN Arbor, as the majority of my readers probably know, is located on the main line of the Michigan Central Railroad, 36 miles west of Detroit. The Ann Arbor R. R., running due north and south, crosses the Michigan Central tracks and the Huron River on a very high bridge, built on a curve, the first of its kind to be constructed in this country. My study of operations on the main line of the Michigan Central R. R. caused me frequently to study the operation of its rival—the old Lake Shore & Michigan Southern R. R., tho' both were under New York Central control at this time. The nearest vantage point was Toledo which involved a trip over the much maligned and joked about Ann Arbor R. R. The distance between Ann Arbor and Toledo was exactly 50½ miles, and when the fares were 2c per mile, the ticket offices at either Toledo and Ann Arbor were a dumping ground for silver "cart-wheels" and pennies. They were never refused.

Mr. Arthur Curran, in Bulletin No. 28, spoke of the 4-6-0 engines on the Lake Shore & Michigan Southern R. R. Having seen some of these engines in service I was very much interested in his account, particularly with the accompanying list of this type of locomotives that were built for the road. However, in my day, just prior to the arrival of the Pacific type engines, the road was using with these 4-6-0 engines, their newer Prairie type of power.

The Union Station was always a busy place at Toledo, especially a few years after I have in mind, for then it was in fact, a "Union Station" as practically all roads used it. During all times of the day or night, trains were arriving and departing. The Lake Shore then was operating about seven fast trains each way daily, the majority were handled by these Prairie type engines. Of these trains perhaps the better known were No. 32, the "Fast Mail" leaving at 8:50 A. M., No. 6 the "Chicago, Cleveland & New York Special" leaving at 1:50 P. M., No. 26 the "Twentieth Century Limited" leaving at 6:44 P. M. and No. 22 the "Lake Shore Limited" leaving at 11:55 P. M. Of the west bound trains, No. 19 the "Lake Shore Limited" left at 9:55 A. M., No. 23 the "Western Express" left at 2:10 P. M., No. 3 the "Fast Mail" left at 1:25 A. M. and No. 25 the "Twentieth Century Limited" left at 4:04 A. M. Practically all of these trains were handled by the Prairie type engines, east and west of Toledo.

These Prairie type engines, as I understand it, originated with the road, Mr. H. F. Ball was at the time Superintendent of Motive Power. The last lot of 4-6-0 engines had about 33 square feet of grate area. The use of a trailing truck permitted a large firebox and the first 2-6-2 engines had 48.5 square feet of grate area and the last lot had 55 square feet. Now we all know that the Pacific type of locomotive superseded these Prairie types, which, when run at high speed, nosed considerably and there was the danger of them jumping the track on account of the pony truck. At the same time I don't recall any serious accidents to

their trains on this account and I always felt that the Lake Shore with its easy curves and long tangents was an ideal place for this type of locomotive which would not be possible on other roads unless conditions were similar. On the other hand the Pacific type presents more opportunities for development than the Prairie, but, it is a fact that the Lake Shore had eighty (80) engines of this type all told.

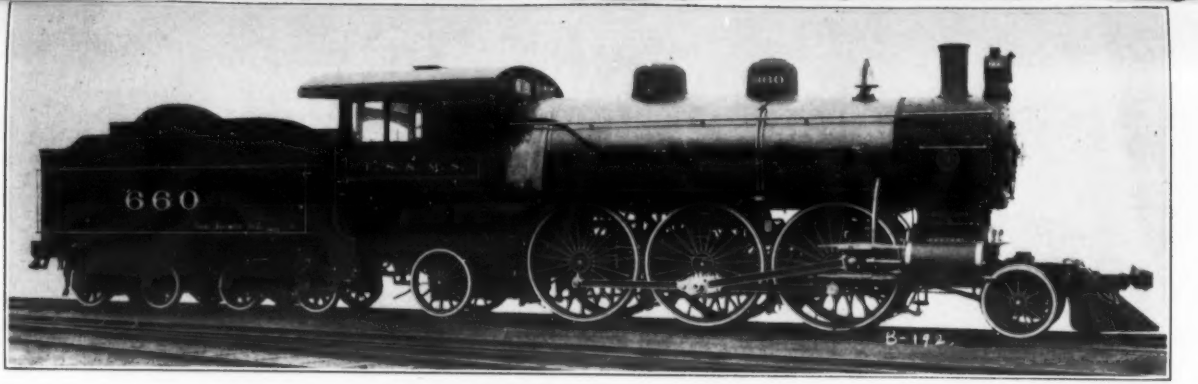
Through the kindness of your Editor, I have been permitted to make some notes of a Lake Shore classification of this period. The first engines of this type were received in 1900 and there were two of them, Nos. 650 and 651 received from the Brooks Works. Eleven (11) more were delivered in 1901, twelve (12) more in 1902 and twenty-one (21) more in 1903. They were practically alike. They all had 20½x28″ cylinders, the weight of the first two were 130,000 lbs, the weight of the last six were 138,000 lbs. As built, they had 80″ drivers, but when the road used a 3½″ tire, these locomotives had 81″ drivers as did the last lot of 4-6-0 engines mentioned in Mr. Curran's article. These engines were numbered from 650-695 incl., renumbered in the New York Central series from 4650-4695 and were classified as J-40-A to D.

The next lot of engines were ordered for the road by the New York Central R. R. Fifteen (15) of them were built by Brooks in 1904 and they were classified as J-41. These engines had 21½x28″ cylinders, 79″ drivers and weighed 176,200 lbs. These engines were originally numbered 3700-3714. In the meantime the curiosity of the New York Central people had been aroused over this type of engine and ten of them were transferred east of Buffalo, renumbered 1290-1299 incl., and the Lake Shore received some Atlantic type engines. The Prairie types were not suitable for the New York Central and the Lake Shore did not like the Atlantics, so the engines were returned, the Prairies resumed their former numbers and were later renumbered 4700-4714 incl.

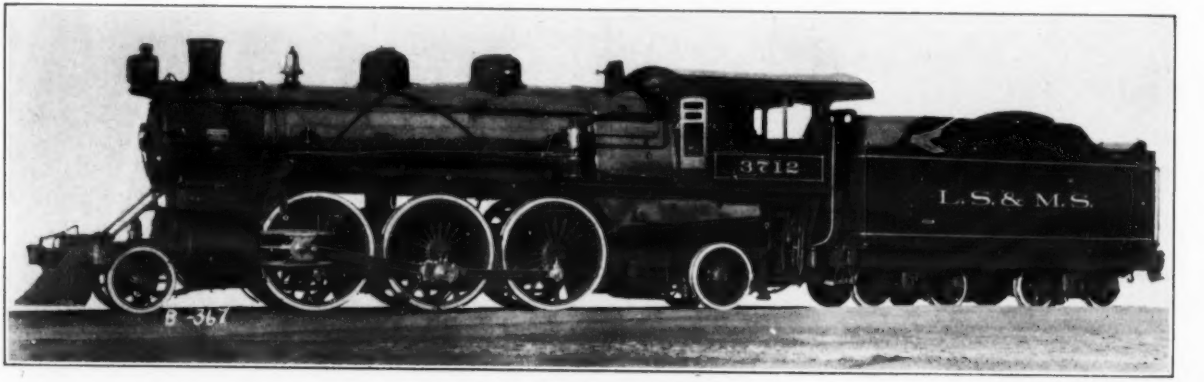
The last lot of 2-6-2 engines were delivered by the Brooks Works in 1905. These were numbered 4715-4734 and were similar to the J-41 engines. All of these Prairie type of engines carried 200 lbs. pressure. In later years, 1916-1917, the J-41 class engines were rebuilt to Pacific type engines at the Collinwood Shops, and reclassified as K-41. Those of the J-40 class were never rebuilt. During the renumbering of these locomotives it was no uncommon sight to see the 3704 bring a train into Toledo and the 4705, an engine of the same class, take the train eastward.

The last train for Ann Arbor over the Ann Arbor R. R. from Toledo used to leave 4:45 P. M. This was earlier than I could sometimes leave and I was obliged to return via Detroit. The Lake Shore and Michigan Central paralleled each other and my return depended on the train that left Toledo first. On the Lake Shore, after the arrival of the Pacific type engines, some of the Prairie types were used between Toledo and Detroit and many a time I've ridden behind them for that short trip. They could travel, there was never any question about that! With the numerous grade crossings there was plenty of whistling also!

Through the kindness of the American Locomotive Co., I am enabled to reproduce for our members two of these classes of locomotives which I hope will be of interest to my readers.



L. S. & M. S. #660—Brooks, 1901.



L. S. & M. S. #3712—Brooks, 1904.

How They Hauled A Hoisting Engine to the Summit of the Sierra Nevada Mountains in 1886

Contributed by D. L. JOSLYN

Mr. Joel O. Wilder, pensioner of the Southern Pacific Co. who joined the engineering staff of the Central Pacific R. R. in 1865 tells the following:

EARLY in 1866 it was decided to work the summit tunnel which was to be 1659' long, from four faces. The work had already begun at the east and west portals, the headings having been started in August of the previous year. In order to begin work from the center it was necessary to sink a shaft. This was driven through granite so hard that seven inches a day was all the progress they were able to make. On December 19th, 1866, the shaft was deep enough to begin the laterals and it took a year from then to complete the tunnel.

"In connection with this summit tunnel, I'll tell you how they got a hoisting engine to this elevated location where there were not even trails. A small Hinkley engine that the Central Pacific had acquired when they bought the Sacramento Valley railroad, was secured for this purpose and the Motive power department of the C. P. had orders to get this engine to the summit and rig it up as a hoisting or winding engine.

"The engine was partly dismantled at Sacramento, loaded on a flat car and taken to the end of the line, which was then at Gold Run. Here it was jacked up, the wheels removed and by the use of traveling jacks was moved 14" at a time to a logging truck, a clumsy contrivance with wheels two feet wide, so designed to travel the muddy roads of the rainy season. After the engine had been bolted and braced to the truck, "Missouri Bill" hitched his ten yoke of oxen to the truck, and the "picked black goose", as they called the stripped locomotive, was on its way to the summit, with Chief Wagonmaster L. P. Pratt in charge.

"All went well until a half-mile east of Dutch Flat. Here the "black goose" received its first cussing, for she had been the cause of a stampede of a ten mule team. Anyone familiar with mules, knows that when they start something they usually finish to a queen's taste with a lot of broken gear.

"From that day on the "black goose" raised h___l on the trail. Word of the dread spectacle passed speedily into the back country and it was with fear and trembling that those in charge of emigrant trains of prairie schooners tackled trails in that vicinity. There was trouble every day while she was on her way up the mountain. Even the stage horses would balk at the sight of her. We finally resorted to the expedient of blindfolding the mules and horses that had to pass because we found that whenever they caught a glimpse of the locomotive they took either to the hills or the ravines, whichever looked best to them at the moment, and were not particular what they took along with them. I will give the

mules credit however, that before starting they did their best to kick everything loose. The blindfolding device was suggested by Wagonmaster Pratt, who also offered the service of his teamsters to help lead the hooded animals past the scarecrow.

"After that the only serious sufferers were the traveling men who were too busy to listen to advice. It mattered little whether it was a young team they drove or an old pair of skates traveling along with their heads down, one look at the "goose" and they forgot everything else and dashed away for the hills.

"The farther up the mountain we got the steeper became the grades and the softer the roads. Wagonmaster Pratt took no chances and for long stretches would build a regular corduroy road which was used by others for some time to come. Sometimes the grade would be too heavy for the oxen and the company's fast freight teams which were constantly on the road taking supplies to the workers beyond the mountain, would be requisitioned to help.

"After crossing the divide above Emigrant Gap, the road to Crystal Lake was down grade. Because of the great weight of the locomotive this proved the most difficult part of the journey. With heavy logging chains and chain tackle fastened to the big pine trees, the "black goose" would be lowered down the grade as far as tackle would permit. Then the engine would be blocked, and the tackle changed and so on until the bottom was reached.

"The "black goose" finally reached Heatonville, now Lower Cisco, where it caused great excitement. From there to summit was up grade. This last leg was practically clear sailing except for crossing the upper and lower outlets of Kids Lake, or the Cascade, as it now is known, and crossing the Yuba River and Drivers Creek, the bridges over which had been rebuilt to take care of the "black goose".

"Everything was ready when the summit was reached. The engine was jacked up and placed on huge timbers, gearing and a winding drum was attached to one of the drivers and she was soon ready to pay with interest the cost of her coming. It took all told six weeks to make the trip from Sacramento to Summit and get set up for work."

Note: Mention is made by Mr. Wilder of the engine being loaded on a flat car at Sacramento and taken to Gold Run. Why did they not run the engine on the track under her own power as far as Gold Run, or at least make her haul a load up there? Simply this, the Sacramento Valley R. R. was 5 foot gauge, the C. P. R. R. was standard gauge.

Evanston Branch of the Chicago, Milwaukee & St. Paul Railway

Contributed by HUGH G. BOUTELL

IN MY younger days the branch line of the Chicago, Milwaukee and Saint Paul Railway extending from Chicago to Evanston, Ill. possessed several features of interest. I presume that this was a so-called "strike road," built to compete with the Chicago and Northwestern, and I understand that it was never a financial success. It was a double track line extending from the old Union Station in Chicago through Evanston to some one of the suburban towns north of that place. About 1899, however, the line beyond Evanston was sold to an interurban electric road, and eventually the entire branch was abandoned as a steam railroad, the right of way being acquired, I believe, by the Northwestern Elevated.

When I knew the road the traffic was quite light and consisted almost wholly of passengers. The trains were handled by small American type locomotives, which in outward appearance differed considerably from the typical power of that day. They had extended wagon-top boilers of small diameter, small cylinders, and rather large drivers. The tender tanks had slanting tops like a switch engine, and there were pilots and headlights at both ends, so the engines could run in either direction. The stacks were high and tapering and there were non-lifting injectors. These engines were probably built by the railroad company.

The passenger coaches were rather lightly built, of wood of course, and with open platforms. They were painted in the road's standard orange, and carried underneath the car body a peculiar fence-like arrangement. This extended downward from the side sills almost to the ground, outside the trucks and ran the full length of the car. I presume this was a safety device to keep the belated commuter from falling under the wheels when he hopped the "5.15."

The C. & N. W. and C. M. & St. P. tracks paralleled each other closely through the town of Evanston and crossed all streets at grade. The crossing gates on the Northwestern's side were of that road's standard pattern, painted black and white, while on the St. Paul's side the gates were (as I remember them) much heavier in construction and were dark red and black or green. The two opposite sets of gates were controlled by one watchman. The Northwestern ran its trains on the left-hand track and the St. Paul, as usual, on the right hand.

I am sorry that I do not have a photograph of one of these interesting trains. As is often the case, I did not make such a picture when I had the opportunity, and in fact, have not visited that section of the country for over 25 years. Perhaps some other member can supply further details concerning the Evanston Branch.

Norris Locomotive in Japan

IN CONNECTION with the article under this caption that appeared in our Bulletin No. 31, one of our members, Mr. Rowland Hazard, started a search in the files at Washington, on this interesting subject.

In a letter received from Captain D. W. Knox, (Retired), Officer in Charge of the Naval Records and Library of the Navy Department, states the following is found in the transactions of Commodore Perry upon his second visit to Japan:

"And I may remark in conclusion that in the short time we have been in this Bay, about five weeks, we have conciliated in a great degree the confidence of the authorities and the people. We have established a Magnetic Telegraph upon the land, almost as perfect as any in the World, a mile in a direct line, by which words in English, Dutch and Japanese have already been conveyed; have laid down the entire Rail Road track sent from the United States, and put the Steam Engine, Tender and Cars in excellent practical operation, carrying round the circle many of the astonished natives."

Again we find the following statement on Page 357 of House Executive Document 97, Thirty-third Congress, Second Session, entitled—"Narrative of the Expedition of an American Squadron to China Seas and Japan, 1856":

"Nor did the railway, under the direction of Engineers Gay and Danby, with its Lilliputian locomotive, car and tender, excite less interest. All parts of the mechanism were perfect, and the car was a most tasteful specimen of workmanship, but so small it could hardly carry a child of six years of age. The Japanese, however, were not to be cheated out of a ride, and, as they were unable to reduce themselves to the capacity of the inside of the carriage, they betook themselves to the roof."

The same document lists among the gifts presented to the Japanese officials—1 locomotive and tender, passenger car and rails complete. The same document states—"a piece of level ground was assigned for laying down the circular track of the little locomotive . . . . . "

Mr. Stanley K. Hornbeck, Chief, Division of Far Eastern Affairs, Department of State, advises—"In the course of examining a booklet entitled—'A Picture Scroll of Commodore Perry's Arrival in Yokohama in 1854': a posthumous work by Ohsuke Hibata, the undersigned has discovered a drawing, which would appear to have been made by a contemporary Japanese draughtsman of 'A Locomotive and Cars Donated by the American Government'. This drawing comprises a locomotive, tender, and one passenger coach. On a plate on the front of the engine there appears lettering as follows: 'Nobris Works 1853'; and the same words occur on the drawing a little to the left of and in front of the locomotive. It is conjectured that the draughtsman or copyists have made an error in lettering: their 'Nobris' was probably in fact *Norris*."

There is such a similarity between this drawing and the one in the Smithsonian Institution as to leave little doubt as to its origin and subject.

French Express Trains—Yesterday and Today

THOSE of our members who are interested in a pictorial history of the French locomotive and train will be interested to learn that one of our members, E. Andre Schefer, has had printed a limited edition of colored plates under the above title. Mr. Schefer is a very skilful artist. He has the ability of portraying accurately his locomotives and trains in proper settings and the printing is beautifully finished. The book consists of ten colored plates of the following subjects:

1 Nord, 1872. Express train Calais-Paris, pulled by locomotive "Outrance", 1st type, series 2.800
2 P. O. 1872. Express train Paris-Bordeaux, Forquenot type, series 33-47
3 P.-L.-M. 1876. Mail train Paris-Marseille, engine series 31-90
4 Ouest. 1883. Mail train Paris-Le Havre, engine, type 600
5 Est. 1895. Express train Paris-Nancy-Strasbourg, compound locomotive, type 800
6 P.-L.-M. 1904. First class train Paris-Vintimille, compound locomotive, series C 61-180
7 Nord. 1932. "La Fleche D'Or, Pullman express Paris-Calais-London, super Pacific type, series 3.1251-1290
8 P. O. 1932. Express train Paris-Bordeaux, super Pacific type, series 3.700
9 P.-L.-M. 1932. "Cote d'Azur", Pullman Express Paris-Vintimille, mountain type 241-C. 1
10 Est. 1932. Express train Paris-Strasbourg-Metz, mountain type locomotive, series 241

The price of this little booklet is 20 francs and there are still a few left from a very limited edition. Those of our members who wish to procure copies should remit direct to E. Andre Schefer, 15 Rue des Binelles, Sevres(S et O), France.

EXHIBITION OF AMERICAN LOCOMOTIVES

NO LITTLE interest has been shown in New York City in the material on exhibition at the Schartz Galleries of New York City by our artist and fellow member—O. Kuhler. The exhibit included twenty water colors, six etchings and twenty drawings—all of the "Iron Horse". It is with genuine interest that we learn that this exhibit will be shown in Boston—at the Doll & Richards Galleries, 138 Newbury Street, commencing on November 20th. The work of Mr. Kuhler should not be new to our members as he has been kind enough to furnish the covers for our bulletins for the past two years. Those of us who live in the vicinity of Boston should most certainly pay a visit to this interesting exhibit. The material will be on exhibition at Ackerman & Son in Chicago and other places in the country, dates of which are not now known. Watch your newspapers for this information, however.

In Memory of

ELISHA LEE

Vice President—Pennsylvania R. R.

Philadelphia, Pennsylvania

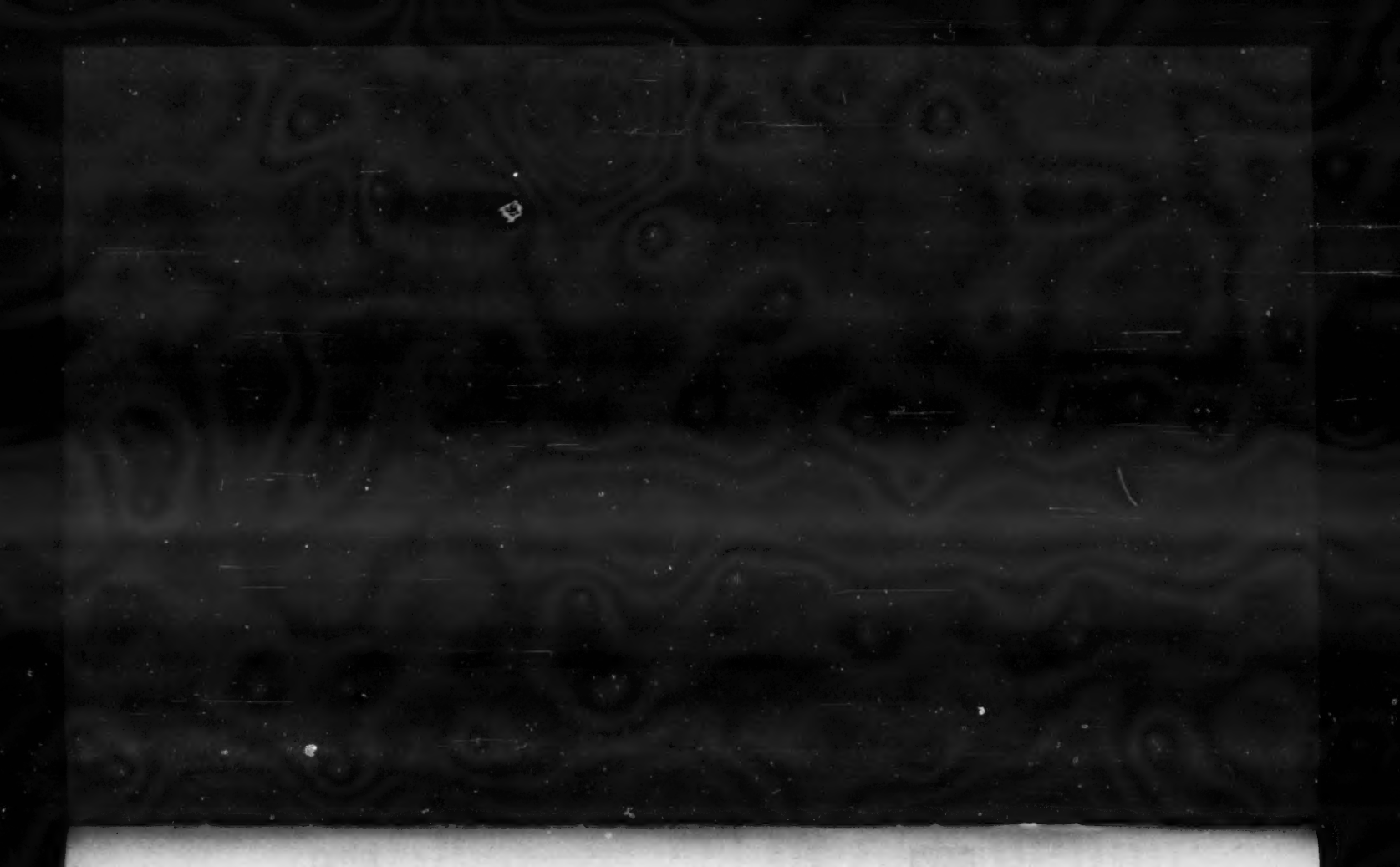
Who died on August 6th, 1933

AND

HENRY M. SPERRY

Life Member

347 Madison Avenue

New York, N. Y.

Who died on September 2nd, 1933